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COMMISSION OF INQUIRY INTO THE  
USE OF DRUGS AND BANNED PRACTICES  
INTENDED TO INCREASE ATHLETIC PERFORMANCE

B E F O R E:

THE HONOURABLE MR. JUSTICE CHARLES LEONARD DUBIN

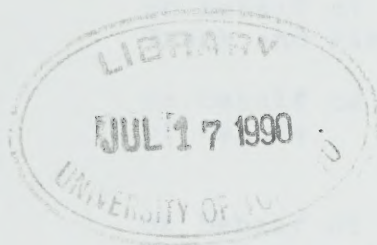
HEARING HELD AT 1235 BAY STREET,  
2nd FLOOR, TORONTO, ONTARIO,  
ON WEDNESDAY, AUGUST 2, 1989

VOLUME 68





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R. ARMSTRONG, Q.C. Ms. K. CHOWN	on behalf of the Commission
R. BOURQUE	on behalf of the Canadian Track and Field Association
J. DePENCIER	on behalf of the Government of Canada
T. BARBER R. MORROW	on behalf of the Sport Medicine Council of Canada, and Professors Donike and Dugal
R. McCREATH	on behalf of the Canadian Olympic Association
A. PRATT	on behalf of Charles Francis



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--- Upon commencing.

THE COMMISSIONER: Mr. Armstrong.

MR. ARMSTRONG: Thank you, Mr.

Commissioner.

5

ROBERT DUGAL: Recalled

--- EXAMINATION BY MR. ARMSTRONG: (Cont'd)

10

Q. Dr. Dugal, I wanted just briefly to return to the citric acid question that was raised yesterday during the course of your evidence by the Commissioner and also, of course, referred to by you.

15

You were frank to say you were not entirely -- you weren't sure whether or not it was either an effective blocking agent or a masking agent or whatever the proper terminology is. And I think your conclusion appeared to be that it may well be no more than a placebo.

20

Now, I just wanted to ask you a technical question in relation to it. Can you tell me from your expertise whether or not citric acid increases the, and I have difficulty pronouncing this word, but the glomerular filtration?

A. I don't know, sir.

25

Q. If citric acid does increase the glomerular filtration rate, could it act in the way a diuretic acts?



A. It might, yes.

Q. And --

A. Excuse me, sir, if I may qualify this. If it did increase the urine flow rate significantly, and  
5 by that I mean that the urine flow rate generally in men is approximately 1 millilitre a minute. Diuretics can increase that to 10 to 15 times. Whether a citric acid is capable of increasing the flow rate by such a percentage, I don't know.

10 Q. Assume for the moment that it does increase the flow in such a way, and assume for the moment that such a substance was taken by some of the weightlifters whose evidence we heard in Montreal, that might account for the fact that when the first test was  
15 done on some of those weightlifters, their urine was too dilute for you to get an appropriate or to get a proper result. Do you agree?

A. Well, dilution may mean at least two things. It may mean that specific gravity is very low or  
20 approaches that of water. It may also mean that the -- what has been referred to here as the endogenous steroid profile, although normally distributed is fairly low, that would be an indication of dilution in urine.

Now, I don't really recall, that's been  
25 again a long time ago. I don't really recall the full





data on these athletes, but I do remember at least one or two of them had a very high specific -- the samples, rather, had a very high specific gravity and fairly low androgenous steroid profile. That was abnormal itself; that was the first time we encountered such a thing.

The high specific gravity might have been due to a large excretion of citric acid and/or its metabolites because there was some, as I recall, some suspension or some material in the suspension in at least two of these samples. That might be an explanation.

Q. All right. Thank you. Then moving along to another subject. Over the evening last night I am advised by Mr. Barber you sat down with pen to paper to see if you could work out what the cost might be to the Sports Medicine Council of Canada for an increased number of tests. I had asked you to look at double and triple the number.

Mr. Barber tells me that, just in fairness, without access to your records, although you were quite agreeable yesterday afternoon, when you thought about in fairness to you and us, you don't think you can do that, but you have undertaken through -- your counsel has undertaken on your behalf to provide that information after you are able to look at your records?

A. That's correct, sir. My statement





yesterday may have been overly optimistic. I need to, of course, appraise the present status of all the instrumentation. I need to calculate how much more personnel will be needed and so on and so forth, and possibly make a projection over two or three years.

Q. Let me return to a subject that we discussed yesterday, that is the contract that you have to do 17 or 1800 tests a year for the NCAA. I don't know whether you actually said it was a contract to do that number of tests, but you said that was the number you did. What does the contract provide for, how many tests?

A. A minimum of 1,500 tests a year. The budget for the NCCA was established taking in account that minimum.

Q. Okay. How does the unit cost compare with the contract you have with Sport Canada, recognizing that the unit cost to -- or to the Sports Medicine Council of Canada is \$400 per test?

A. Again I will have to insist that this kind of operation cannot and should not be calculated on the basis of unit cost. It depends the cost, if you wish. What I submitted -- let me rephrase that.

What I submitted to Sport Canada several years ago was a budget, a budget delineating personnel, laboratory supplies, equipment over a period of time. A



number of things as I indicated yesterday were not budgeted. My salary and other indirect expenses. In addition to that --

5 Q. Can I just stop you there. I mean businesses do this all the time. They figure in a percentage for overhead which might include managerial costs and others. Do you not do that when you tender for a contract?

10 A. In this particular case, we did not. We, as I indicated again yesterday, we budgeted strictly direct cost associated with the testing, and the research associated with it.

15 At the time was budgeted in particular the research work that was necessary to develop a method for beta-blocking agents as well as for diuretics.

So, the unit cost is not a fair way of assessing the cost of a testing itself because it did include a lot of things besides the testing per se.

20 Q. But in your budget you figured in a cost for developing a test for beta-blocking agents and diuretics?

A. Yes, that's correct.

25 Q. And at that time were there not tests already developed by Professor Donike or others to detect beta-blocking agents and diuretics?





A. We are back before '84-'85 now, and the answer to that is no.

Q. All right. Perhaps I asked the wrong question, let me just ask the direct question. What is  
5 the cost or the charge to the NCAA?

A. One-hundred-and-eighty-five U.S. dollars per test, plus half a million dollars U.S. in equipment which were granted to us two-and-a-half years ago.

10 Q. I am sorry, I missed the second figure. How much?

A. Half a million dollars.

Q. \$500,000.00 --

A. That's right, U.S.

15 Q. -- U.S., what, to purchase equipment?

A. To purchase equipment, yes. I might point out also that this cost was established taking into account other factors. The samples that we received from the NCCA are received in discrete periods. We do receive,  
20 for example, approximately 550 samples in late November and December, up until about Christmas. There is another set of 500, which is received in February or early March, and then another set later in May and June.

So, there are discrete periods. And that  
25 cost which may seem lower, but which isn't, takes this



into account.

Whereas Sport Canada, or the SMCC contract, calls for analysis 52 weeks a year over time, which means that you have got to maintain the infrastructure during  
5 that period and that cost has to be taken into account. In addition to that, of course, the research component is important in these considerations.

The up shot being that the cost that the Sport Canada or the SMCC are charged is comparable to what  
10 is happening elsewhere, particularly in Europe.

Q. What does it mean, Professor Dugal, when you say you have to maintain the infrastructure. What is that? I mean, you have got your building, it is there whether you are testing or you are not testing. You  
15 have got your equipment?

A. We have personnel under contract as well and research to pursue. This is not the kind of laboratory that you can turn off and then turn on again if one or two samples come in in the dead periods, if you  
20 wish. When no samples are received for testing, research and all kinds of areas is conducted. And, therefore, has got to be budgeted to maintain the expertise.

Q. The \$500,000.00 U.S. to purchase equipment, what kind of equipment was that that you  
25 purchased?



A. Part of that money was used to buy a large high resolution gas chromatograph-mass spectrometry to update the computer system.

Q. Sorry, I am just going to make a note of that. Large?

A. Gas chromatograph.

Q. Large gas chromatograph.

A. Mass spectrometer system, high resolution. It is called an MS-50.

That instrument costs approximately \$500,000.00 Canadian. And if I recall properly, half of the NCCA money was used to buy it. My own institutional budget was used partly also to complete the sum. And \$100,000.00 from the SMCC contract was also used to finally complete to \$500,000.00. It was a multi-financing purchase, if you wish.

THE COMMISSIONER: When did you enter into the contract with the NCCA? Is it quite new?

THE WITNESS: August; the contract was executed in either late August or early September of 1986.

THE COMMISSIONER: Of '86. When was the first contract that you entered into with Sports Canada, with Sport Medicine? It was earlier, was it?

THE WITNESS: That was earlier. That was two years before that, at least. It was in --





THE COMMISSIONER: Would the additional testing for the NCCA, wouldn't that reduce the total unit cost for your whole operation?

THE WITNESS: It would --

5 THE COMMISSIONER: You have got another 1,500 tests to perform a year?

THE WITNESS: It did allow us to increase our research capability in terms of instrumentations and personnel.

10 THE COMMISSIONER: How many researchers do you have? Are there scientists, researchers?

THE WITNESS: That's divided into -- I have the list of the personnel here if you want to look at it. There are, as I told you yesterday, three senior faculty members involved in research, but that's not -- the cost of that is absorbed by the institute.

15

There are two research associates at the PhD level, a couple at the MSc level, and technicians, of course, which are used both for the testing procedures.

20 THE COMMISSIONER: They are paid out of this \$400,000.00?

THE WITNESS: Some of them, yes, some of them. To give you an idea out of the total operation, assume, it is for the sake of the discussion for the time being, that it is one million dollars for example, 35

25



percent of that, maybe 40 percent, comes from the SMCC.

THE COMMISSIONER: Right.

THE WITNESS: About 35 percent comes from Sport Canada or the SMCC contract, and the rest of it is absorbed by the university.

THE COMMISSIONER: I see.

THE WITNESS: It is our contribution.

MR. ARMSTRONG:

Q. Going -- sorry.

THE COMMISSIONER: No, go ahead.

MR. ARMSTRONG:

Q. Going back to the NCCA contract, of the \$500,000 U.S. to purchase the equipment, I think we have accounted for about \$250,000.00 or thereabouts to buy the high resolution gas chromatograph-mass spectrometer. What would the remaining \$250,000.00 have been used for?

A. I don't really remember. It might --

Q. A quarter of a million dollars U.S., you don't remember? That's a big chunk of dough.

A. Well, my budget at the institute is five million dollars. It is not at all surprising I wouldn't remember such things.

Q. Gees, Dr. Dugal, somebody who deals in





the kind of precision that you deal in, I, quite frankly, would have thought that you might have remembered that.

MR. BARBER: Mr. Commissioner, frankly in fairness to the witness, I don't recall any of this material being dealt with during preparation. And we indicated that we are prepared to file, or Dr. Dugal is prepared to file, some indication of a budget projection.

If the Commission has other questions about the financing, I am sure Dr. Dugal is prepared to take them under advisement, but I think it is somewhat unfair to him to be asking him these questions here this morning when he is not at his office, has no access to his material, and hasn't been asked to prepare for it.



THE COMMISSIONER: Mr. Armstrong, what do you say?

MR. ARMSTRONG: Well, the issue of cost really came up during the course of answers given yesterday when I asked Dr. Dugal about the capacity of his lab to take on increased testing, and he said, of course, that one of the elements he would have to consider would be the cost.

Indeed, my friend, Mr. Barber, was good enough early in July to forward to me an outline of what he proposed would be appropriate areas for examination of Dr. Dugal. Number 5 in the outline he prepared was capacity of the lab at the present, and then he goes on to say the number of tests per annum that could be performed, requirements necessary to achieve full capacity, a description of the lab's research capabilities, sport and drug related, et cetera.

In our meeting, while we didn't discuss dollars and cents, we did discuss that Dr. Dugal wanted to indicate or was prepared to indicate what it might take to increase the capacity in order to take on more testing. I would have thought that a significant feature of that, as indicated by Dr. Dugal yesterday, would be what is the cost. So that's why I have been probing it.

THE COMMISSIONER: I think you are asking



now how the \$500,000 -- was that a one-shot contribution?

THE WITNESS: Yes, it was, sir.

THE COMMISSIONER: You are asking him specifically how that money was expended, and perhaps Mr. Barber could supply us with some detail about that.

MR. BARBER: I think we can, Mr. Commissioner.

MR. ARMSTRONG: I'll move on, in any event.

THE COMMISSIONER: Mr. Barber said he will give us that information. You can pursue it, perhaps, then.

MR. ARMSTRONG:

Q. Let me just ask you about the one high resolution, large gas chromatograph that you did purchase with the NCAA equipment. I take it that is part of the laboratory today? It is used by the laboratory today both for the Sports Medicine Council of Canada and for the NCAA?

A. That's correct, yes. This type of contract, the American contract that is, has allowed us to increase, as I indicated before, our research capacity and to increase the refinement of our methodology, and that is beneficial to the Canadian program.

Q. Professor Dugal, the contract that you





have with the Sports Medicine Council of Canada, I think we heard previously, and you confirmed yesterday, that that's a contract that is renewed each year, is it?

5           A.    No.  At the beginning, the contract was negotiated and was concluded for four years, and that was at the wish of Sport Canada, as I recall.  In other words, the contract was instituted sometime in September or October of 1984 for a total duration of four years plus, ending in December of 1988.  That period was then extended  
10           to the federal government fiscal year to 1989, that is March 31st, 1989, and it has now been renewed for one year.  I'm told that the federal government or the Ministry wishes to have the conclusions of this Commission before proceeding with another renewal.

15           Q.    So your contract carries you through, I take it, to March 1990?

          A.    March 1990, that is correct.

          Q.    The current fiscal year?

          A.    That's right.

20           Q.    Over the course of the initial letting of the contract and the renewals, has it just simply been negotiation between the Sports Medicine Council of Canada and your institute, or have there been tenders received from other laboratories?

25           A.    At the very beginning of this, back



again in late '83, early '84, it was apparently decided by  
by high officials of the Ministry to deal only with IOC  
accredited laboratories for drug testing of Canadian  
athletes. At the time, we were the only such organization  
5 in Canada. I presented a proposal and a formal budget  
which was analyzed not only by high officials of Sport  
Canada, but also by scientists from the Health Protection  
Branch of the Ministry of Health and Welfare.

We did receive the visit of a  
10 scientist at the lab back then. That was I guess before  
the L.A. Olympic Games. I understand that the  
recommendation from the scientist for the Health  
Protection Branch to the Ministry of Fitness and Amateur  
Sport was extremely positive, and that the budget that we  
15 did present was deemed to be extremely fair. I was told  
that afterwards.

Q. Fair enough. The bottom line I take it  
of what you just said, though, in order to be in the race,  
as it were, you've got to be an IOC accredited lab?

20 A. That was a criterion that was chosen at  
the outset by Sport Canada.

Q. When you negotiated your contract, you  
were the only Canadian IOC accredited lab, so the Sports  
Medicine Council of Canada and Sport Canada were going to  
25 deal with a Canadian lab. Then you, by the process of



logic and elimination, were the only one in the running?

A. Well, I guess they were lucky to have us.

Q. Right. Then looking at the current  
5 situation, it would seem if the Sports Medicine Council of Canada and Sport Canada set the same prerequisite, that is, that it's going to deal with an IOC accredited lab, to the extent that it's going to deal with a Canadian lab, you effectively are the only lab in the running?

10 A. At the present time, yes.

Q. Then let's turn back to another  
subject, if I can. It's probably my ignorance that leads me to go back to it, but the testosterone, epitestosterone ratio of 6 to 1, when you run your test for anabolic  
15 steroids, your procedure for anabolic steroids, and when you look at your data on let's say your first run, if I can call it that, and you get, let's say for a certain person, a reading on the ratio that is above 6, let's say 6.2, which is fairly close to the line, what do you do  
20 with that 6.2? Do you run further tests, further extracts in order to arrive at a mean? If so, how many do you do, and is the procedure uniform throughout the IOC accredited laboratory system?

25 THE COMMISSIONER: Those are several questions, you know.





MR. ARMSTRONG: I realize that, but when we're not talking dollars, Dr. Dugal is able to deal with several questions at once.

THE COMMISSIONER: We'll see.

5 THE WITNESS: If in the initial screening --

THE COMMISSIONER: May I ask you this, Professor Dugal. On the material that comes out, what is called the "printout", does it immediately show the profile that we're talking about?

10

THE WITNESS: Yes, it does.

THE COMMISSIONER: By one of these lines that we had yesterday? Would that be one of them?

THE WITNESS: Yes, I believe that you will have further information about that from Professor Donike.

15

THE COMMISSIONER: So that when you take one printout for your selection, the first stage, it will show a profile?

THE WITNESS: That's right, yes.

20 THE COMMISSIONER: Assuming now that the profile is higher than the 6 to 1 ratio, say 6.2 or 6.3, what happens then? Because at that moment, according to the IOC rule, that would be a disqualification basis, even though finding the substance in the urine itself.

25 THE WITNESS: Okay, we have first screen.



Remember, we extract and then we screen and then we identify it. I assume that we're at the screening process.

5 THE COMMISSIONER: We're still in the screening process.

10 THE WITNESS: That's right, and that the ratio that is calculated, the first screen, to take your example, is 6.2. That value is not an extract value itself. You would then reprocess that sample in a more specific, computerized method. You would do a few checks to determine whether the testosterone or the epitestosterone peaks are pure, that there is no interference, and then you would take two or three or four aliquots, different aliquots, depending on how much urine is left at this stage, and you would then extract those simultaneously.

15 THE COMMISSIONER: Just to test for this one purpose?

20 THE WITNESS: That's correct, yes. Then these four extracts would be injected two or three times, using this specific method and calculating the ratio. It's quite possible that on the first screen, for example, we might obtain a ratio of 6.2 and that with the more compact methodology which follows that a ratio of 5.7 plus or minus 0.2 might be found. That's a perfectly possible

25



occurrence. At that point, that sample would be considered as being negative.

MR. ARMSTRONG:

5 Q. You mean as soon as you get the 5.7, or do you run several of these? It's perfectly possible, presumably on your more exact system, to run 6.2 and find out that it's not 6.2 but 6.9, going the other way.

10 A. That's also a possibility, as I indicated to you a moment ago. We would take four different aliquots, that is four different -- the same urine separated in four different aliquots, which would then be simultaneously extracted, each of these extracts being injected, for example, twice which would generate  
15 then eight different values. Certain statistics would be made on these values, and if again the initial value of 6.2 turned out to be 5.8 or 5.6 by this more refined methodology, then the sample would be considered negative; and conversely, again using this more exact method, a  
20 value of 6.5, plus or minus 0.2 is found, then the sample would be considered positive.

25 Q. Is there any fixed number of additional aliquots that you do? In fact, during the course of your last two answers, you did say that you might take two or three more aliquots, and then a moment ago you said you





take four different aliquots. I'm not challenging it. I just want to know if it depends on the particular chemist or operator, or if there is a set down system for it?

5 A. There is a standard operating procedure in the International Olympic Committee document entitled "Good Laboratory Practices and Requirements for IOC Accreditation". I don't remember at the present time whether my number of two or three or four aliquots is exact. I would have to go back to this document, and I  
10 don't have it now.

Q. All right. But whatever the number is, it would be the same number for you, the same number for Professor Semenov in Moscow and Dr. Catlin in L.A. and Professor Donike in West Germany and so on?

15 A. Yes, there is a standard procedure.

Q. All right. Then whatever the number of aliquots that you choose, you do on each of the aliquots two further analyses?

20 A. By injecting the same extract, for example, twice or thrice and the GC-MS and calculating the values.

Q. All right. So let's just for the sake of our discussion here assume that you do four aliquots. You do two injections. I take it on that arithmetic, you  
25 get eight results?



A. That's correct, yes.

Q. Do you take, then, the eight results, whatever they are, 6.2, 5.8, 6.9 and so on and simply average them and come out with a result?

5 A. In most cases yes, because this is extremely reproducible. It's not likely, for example, that we would get five values at 6.2 and another one at 4.8. That's highly unlikely. It would be indicative of instrumental failure, and the whole process would begin  
10 again. In other words, those values would be and are, as a matter of fact, quite close to each other and then averaged, and that is standard operating procedure in chemistry. An average is taken of all these values, and the standard deviation is calculated and then a decision  
15 is taken.

Q. I should know this, but I'm sorry I don't. When you said a "standard deviation", is --

A. That's a deviation from the mean of the values. The lower that deviation, the higher the  
20 precision of the assay.

Q. Let's say that you have your eight epitestosterone ratios. Say the average of them is 6.1. Now according to the rule, as I read it, that person is positive. Now is there something you do for the 6.1,  
25 having gotten the average?



A. If the value was 6.1, plus or minus a standard deviation, for example, of 0.2, as I indicated yesterday, that means that the mean is 6.1, but that the deviation is between 5.9 and 6.3, meaning that at this point a reasonable doubt would exist and further analysis might then be indicated. It is not a simple procedure.

Q. We will take my example, then, of 6.1, that leaves you in the plus or minus range of 5.9 to 6.3. What do you then do?

A. I would probably call this result a negative result and give the benefit of the doubt, that might be one of my reactions depending on the set of data, depending on a lot of circumstances.

Q. Is there not a fixed rule, though? I thought you said it might call for more sophisticated analysis. And, again, looking at the uniformity approach of laboratories, is there then some discretion that rests in you, as director of the lab, or is there a further procedure to resolve the result which we have now got in the range of 5.9 to 6.3 using your standard plus or minus deviation of 0.2?

THE COMMISSIONER: You apply the deviation of 0.2 after you have got the average, isn't that right?

THE WITNESS: That's right.

THE COMMISSIONER: You have got the average





Mr. Armstrong seems to say of 6.2, and you add your 0.2 deviation, it brings it down to 6, I guess, does it? Not exactly.

THE WITNESS: Well, this is a lot more complicated than it sounds. With any values, for example, between six and eight where the ratio which is near the cutoff value, a lot of other work would have to be done.

If we have, for example, a testosterone-epitestosterone ratio of 50 we are not really worried in handing out a positive result. If the value is near six, then a lot of work can go in into that sample.

I have seen values, for example, of 6.7, 6.8 that took us in excess of a week to obtain by re-extracting and re-extracting and re-injecting in the instrument, using different technicians and so on and so forth.

So, we are very careful for this kind of value. And if it is very, very close to six, and there is a variation around the mean, it might -- I am not saying that we do that -- it might be that the result be considered negative. The same thing happens in the qualitative analysis of anabolic steroids.

It is quite possible, for example, to detect the presence of a very low concentration in urine and then be unable to confirm it by a full mass spectrum.



In other words, you have an indication that the substance is present by the screening technique, but the concentration is so low that you cannot confirm it beyond a reasonable shadow of a doubt by mass spectrometry. And at that point, you are forced to call the sample a negative because you cannot confirm it. The same would apply with a ratio. It is not exactly the same thing, but it is another judgment that comes into play.

MR. ARMSTRONG:

Q. Staying with the testosterone-epitestosterone ratio, who makes the judgment in the kind of case that the Commissioner and I have been talking about where your average or mean is 6.1, 6.2, and you apply your standard deviation --

A. You mean the --

Q. -- who at that point says, all right, I am going to give the athlete the benefit of a doubt and call this a negative, or who at that point says I am going to do more work?

I mean it just seems to me that what you are telling me is there is an element of judgment that goes into it. And what I am trying to find out is who exercises the judgment, the chemist in your laboratory, you as director of the laboratory, we are talking about



the Olympics, the IOC Medical Commission?

A. The final decision rests with me, of course, in the Montreal lab, when I am -- if it is a sample that originates --

5 THE COMMISSIONER: Wouldn't the manual set out how this is finally determined? Does the manual show the standard deviation of whatever? You mentioned 0.2, I am not --

THE WITNESS: No.

10 THE COMMISSIONER: The manual doesn't do that?

THE WITNESS: No.

15 THE COMMISSIONER: So, that's -- you would adopt your own expertise to this particular issue, I gather?

20 THE WITNESS: Well, again, if a sample is near, close to the cutoff limit, as I indicated before, a lot of work, a lot of extra work, goes into this until we are satisfied that it is a real positive or potential negative. And if we are not 100 percent absolutely sure --

THE COMMISSIONER: Then you say it is a negative.

25 THE WITNESS: -- then the wisest thing to do is to abstain.



And to go back to your question, Mr. Armstrong, that work, of course, would be done by my top people. And we would have, as the case may be, a meeting to discuss the data fully and in depth and eventually take  
5 a decision on the basis of what we have in front of us which may be two inches or three inches of graphs and paper.

MR. ARMSTRONG:

10 Q. The standard deviation figure of plus or minus 0.2, is that in the operating or procedural manual?

THE COMMISSIONER: I just asked him that.

MR. ARMSTRONG: It is not, I am sorry.

15 THE COMMISSIONER: I am sorry, is it?

THE WITNESS: I don't remember seeing it, of course -- in the good laboratory practices apparently it is, but I don't remember right now.

20 MR. ARMSTRONG:

Q. So, am I right, just to understand this, and all I am trying to do is to assist the Commissioner in understanding this testing process, while I take it that the finding of the presence of an anabolic  
25 steroid, using your gas chromatography-mass spectrometry,





if the procedure is carried through to the end in the way that you have described it, you do end up, for example, in the case of Stanazolol, you do end up if there is Stanazolol -- if the metabolites of Stanazolol in the urine and see them, there is no room to go through any kind of exercise of discretion. The metabolites are either there or they aren't there, and there is a positive finding?

A. That is correct. It is a qualitative identification. We are limited strictly by the detection limit of the instrumentation.

Q. Whereas in the case of the positive finding for testosterone, if as you pointed out you are dealing with a ratio of 50 to 1, nobody gets too excited, you would probably find yourself positive as long as you are satisfied that the machinery is working properly. But in the kind of close situation we are talking about, there clearly is an element of judgment that goes in to it?

A. Yes, this is -- this is exact science, but even in every exact science, there is partly some judgment that goes into it especially if in such a quantitative assay that there is reasonable place for doubt. If there is reasonable place for doubt, in fairness to the athlete, I think a negative result is called for.



Q. What is the historical development of this 6 to 1 ratio? Do you remember when it came in to the Olympic rules?

5 A. That I am definitely not the best man to answer this. You have as your next witness the scientist who developed this test and the concept, who did the basic research on it.

Q. All right. Well, I will ask him, but it has been in I guess for the last few years, has it?

10 A. I am trying to remember now. I think it was introduced in 1982.

Q. Dr. Donike nodded --

A. '82.

15 Q. We get away with that kind of thing in a Royal Commission.

THE COMMISSIONER: As long as you don't do it too often.

MR. ARMSTRONG: If I were in courtroom, the Commissioner might invite me into his chambers.

20 THE WITNESS: I think it was February of 1982, a meeting in Los Angeles; I do recall now, yes.

MR. ARMSTRONG:

25 Q. The theory of it, I take it, is this that Dr. Donike's research or other people's research



indicate that testosterone-epitestosterone normally in a person not having taken anabolic steroids or testosterone exogenously, is one to one?

5           A.    That's right, an average with the deviation around the mean, yes.

          Q.    And the rational, I take it, of the IOC rule as it presently exists is that as you move up the scale from 1 to 1, to 2 to 1, 3 to 1, 4 to 1, 5 to 1, 6 to 1, bang when you have got 6 to 1, the IOC Medical  
10       Commission says we are satisfied that if a person has a ratio of testosterone to epitestosterone above 6, there is no way that that's a normal ratio, he's got to have taken testosterone exogenously?

          A.    After all the necessary precautions  
15       have been taken, yes. If, for example, the ratio of 12 or 15 or 50 is found, it is quite clear based on the research and the data accumulated over the last seven years that this is a positive result.

          Q.    But I assume in the development of this  
20       and I will, of course, ask Dr. Donike about it, but I would like the benefit of your expertise which is considerable, I take it that the conclusion must have been reached at 6 to 1 that there had to be a sort of comfort level, that we wanted to make it, the cutoff point, high  
25       enough, so as to not to catch any innocent parties?





A. Of course, of course. And the fine tuning of the mechanics of this I would assume will be explained to you by Professor Donike later on.

Q. I wanted to turn to another subject and that is, sorry to turn my back, Mr. Commissioner, that is during the course of the track and field evidence, we heard from Mr. Peter Dajia and also Mr. Rob Gray, two members of Canadian national team, who were disqualified and suspended as a result of a positive findings for I believe Deca-Durabolin in June of 1986. In any event, it was at least a metabolite of Deca-Durabolin.

In any event, I know you are familiar with subsequent proceedings that were taken. I know you are familiar with an appeal committee that was set up to investigate the positive finding so far as it related to Gray, Dajia, and indeed a third person named Spiritosa.

One of the issues that arose as is revealed by the report of the committee of investigation, which was chaired by Mr. Bruce Savage, and we have as Exhibit 141, indicated that there was a request by the athletes, particularly I think Dajia, to obtain the results from your lab, and I say, particularly, Dajia. As I said, I think that it was also a request by Gray who was acting in two capacities, both in his own interest and as counsel to the three of them.



And I think the evidence is clear that he was taking the flatfooted position, look, I want all of the results from the test in the Montreal lab.

5 And it would appear from the report, without reading it and I will if you wish, but that at that time the -- either the Sports Medicine Council of Canada or your lab in particular through you, and I believe that it appears from this report to have been your lab was taking the position, look, we do not produce that kind of  
10 information, and we are not going to do it.

Was that the situation at that time, and, if it was, why was that your position?

A. In -- at that period, I do remember that quantitative results were first asked and that the  
15 then Chairman of the SMCC Committee on Doping in Amateur Sport did not wish to release quantitative results for fear that it might be used for monitoring purposes.

At the time also I did quite clearly indicate that I would make available to anyone who wished  
20 to come to Montreal the full data on the samples. I resisted the fact of sending photocopies for fear that it might be at that time misinterpreted by some people.

I repeatedly made the offer later on, particularly at this appeal committee in December of 1986,  
25 I repeat I made the offer to either again make these data



fully available to anyone who would like to see them at the lab in Montreal or alternatively to send them by fax or by another means to the head of an IOC accredited lab for interpretation, confirmation, that is, or information of what we had found.

In the last couple of years, we have kind of modified our attitude in this respect. And we have now -- we are now producing full data to the sport governing body when a positive is found -- let me correct that.

We report to the SMCC only. We provide the SMCC with the full data on the samples. And the data is in turn provided to the sport governing body or anyone who wishes to consult with them.

Q. All right. You said one thing during the course of your answer which I just wanted to follow up. That is that when you took this position in 1986, among other things, you didn't want to produce the analysis and the material which supported the analysis because you didn't want the material to be misinterpreted by some people. What did you mean by that?

A. Well, I just -- there was a lot of press at the time, as I recall. There were a number of people making declarations on national TV about nandrolone being a natural product and so forth. So, we have got to take that climate into consideration in time.



I was just fearful, either rightly or wrongly, that photocopies would be sent just about everywhere and that people who are not especially specialists would challenge the results then forcing us to make a case or give a lecture to have people understand what we were doing.

Again, I was perfectly willing, I repeat, to make these data available on site in Montreal, or to fax those results or send them by any other means to the head of an IOC accredited lab. I think it was at the time, I felt, anyway, a defensible position, but we have since then changed our rationale.

Q. Just one other thing that you mentioned during the course of your former answer, and that is that you had a concern that the results, or maybe in fairness you said the Sports Medicine Council of Canada may have had a concern that the results might be used for monitoring purposes. And how could that arise?

I mean if Gray, for example, tested positively for 19-nortestosterone or some metabolite of Deca-Durabolin, what benefit would that be to him? He knows that as of June the 21st, 1986, he was found positive for that. He could say to himself the last time I took that drug was May the 1st, so I know that the clearance time that I selected was far too short. By





getting the results, is he going to know any more?

A. By getting the quantitative results it might be possible to infer clearance times. And that's the question at that time of having the quantitative results. It was not, as I recall, again my recollection may not be the best at the moment, but my recollection was that they were seeking the quantitative results and that then chairman declined on the basis that I just indicated to you that these quantitative results might be used to determine, empirically, clearance times.

Q. Perhaps I didn't understand then the full thrust of your evidence yesterday. I thought you had told us yesterday that anybody who says that they can make a calculation about clearance times is just off base, you can't do it?

A. No, you can do it to a certain extent.

Q. I see.

A. I indicated simply yesterday that the determination of a number, either 28 days or 45 days or so forth, is very difficult to make, if not impossible. It, in the case of steroids, because their basic kinetics have not been fully elucidated yet, but it would be possible to say, for example, well, anywhere between two and four months, a range, in other words, of times.

Q. All right. Then finally let me turn to



one other subject of a general nature which I think the Commissioner may well benefit from your views.

Most of your testing, I take it, over the years as an IOC accredited lab has been testing arising from samples taken at the time an athlete had competed or just finished competing; is that fair to say?

A. Yes, that's correct, yes.

Q. And indeed the testing I think that you are doing for the NCAA, for example, in football, that testing is done really at the time of competition, is it not?

A. I believe it is done just previous to the bowls, at least as far as football is concerned.

Q. Well, not being an expert on American college football, my recollection is that the U.S. college football season usually ends in early to mid-November and then the bowls usually take place around New Year's day, some a little before, some indeed after. So that the NCAA football players if they were going to be subject to testing, either in your lab or the two other labs, they would in effect be in the same position as a track and field athlete who knew that he was going to run in a meet 6 or 8 weeks from now and might well be subject to be tested.

A. That's correct, yes, it is announced



testing.

Q. Because in the case of the NCAA football players, they know at the end of season what bowl games they are going to be in. In fact, they often know earlier than the end of season.

So, you would agree, then, even in the NCAA case, so far as it relates to football, you are really doing in-competition testing as what I would call it?

A. Well, it is really out-of-competition testing because it is not done in relation, direct relation, to an event.

Q. Well, it is pre-announced testing. The athlete is in a position that forewarned is fore-armed?

A. I may -- I did not understand you fully.

Q. I am sorry. Well, what I mean is most of the testing that your lab has done, and I am not ascribing any blame to you or to anybody else in this, I am just suggesting to you that most of the testing that your laboratory has done in the area of banned substances, is testing that arises as a result of the athletes knowing in advance that they were going to be tested?

A. Well, athletes in this country know that they will be eventually tested if they win some medal --



THE COMMISSIONER: I think Mr. Armstrong is pointing out that the testing you are doing is for athletes to be tested following the competition. And in the football case, it is just prior to the game itself, isn't that right?

THE WITNESS: That's right, yes.

THE COMMISSIONER: So, that in every case, assuming they know that are in a meet which is going to be tested or a pro bowl, the college football bowls are going to be tested, they would know often two months in advance that they are going to play January 1st in the Orange Bowl, they know that probably sometime in November.

So, that they could certainly take advantage of any clearance time that they wished to or knew about to clear themselves for the test?

THE WITNESS: Well, the program of the NCAA is conceived as our own program in Canada as a deterrent program. Specific athletes --

THE COMMISSIONER: The difficulty I am having is that it is quite apparent, is it not now to you, Professor Dugal, that testing for anabolic steroids after the competition when the athlete has competed in the contest, has really been very ineffective because we have had cases that we know athletes have been on anabolic steroids for years, high doses, and tested time and time





again, and they are negative, because they are able either to mask it or to circumvent it by catheter or other type of devices, or to clear it from the system long enough before the games themselves.

5                   It is not critical of the work of the lab, but it must be apparent to you that all these tests you have been taking for years for anabolic steroids after the competition have not been very effective, because athletes are able to avoid being found positive by one means or the  
10                   other.

                  THE WITNESS: That's one way of looking at it, sir, you are quite correct.

                  THE COMMISSIONER: I am not saying you abolish it because I guess it is some sort of deterrent  
15                   yet. But unless you arrive at a system of a competition, post-competition testing is not dependent on finding the system itself in the system, not very effective for anabolic steroids?

20                   THE WITNESS: I agree with you, sir. This is the best thing that could be done up until now, but there was a gradual realization in the eighties that only the careless and the ill-advised got caught irrespective of the value of the deterrence effect at least in relation --

25                   THE COMMISSIONER: The athlete has had all



the advantages of the anabolic steroid, because he doesn't need it in his system in the day of the race, it is not like an amphetamine.

THE WITNESS: That's correct.

5

THE COMMISSIONER: He goes to the race, he's got the advantage, he is going to find himself clean in that sense of having a negative finding.

THE WITNESS: That's correct.

10

THE COMMISSIONER: I thought the endocrine profile is premised on a situation -- you don't find present in the body in the urine, but you have this profile which would be, if it is valid, would indicate a use of a banned substance prior to competition even though there is no substance found in the urine at the time?

15

THE WITNESS: That is correct, yes. Let me add to this that in 1974 I wrote an article summarizing what you have just said that testing at competitions only for anabolic steroids was not entirely useless. I think it is useful --

20

THE COMMISSIONER: It is some sort of a deterrent, I guess.

25

THE WITNESS: It serves as a deterrent. But 15 years ago I was of the opinion that tests should be done out of competition. But, again, that sounds a lot easier than it really is to implement.



There is now developing or has developed recently an international consensus to the effect that out-of-competition testing is one way of solving this problem.

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Q. I take it from what you've just said that the view that you expressed in 1974 you would express today and hold that view with even more vigor today than you did in 1974?

5 A. Quite correct, yes.

Q. Is that view shared by your other colleagues on the IOC Medical Commission?

A. Oh, quite so. I think the view is shared now by quite a number of sports organizations, including the IOC, the European Sport Conference, a number of Olympic committees, the British Sport Council, a number of personalities like Sir Arthur Gold, who you've met in Britain, and so on and so forth. There is again consensus to the effect that an international system of out-of-competition testing is apparently the only way to stop the abuse and misuse of anabolic steroids in sports.

10  
15

MR. ARMSTRONG: Those are all the questions I have. Thank you, Dr. Dugal. Other counsel may have questions of you.

20 THE COMMISSIONER: Well take a short break.  
--- Upon resuming.

MR. BARBER: Mr. Commissioner, I have but one area I wish to deal with Dr. Dugal.

THE COMMISSIONER: Continue, please.

25





--- EXAMINATION BY MR. BARBER:

Q. Dr. Dugal, during the course of your evidence-in-chief, we heard reference to the requirement that the IOC labs be accredited, although your lab was  
5 exempt from that by reason of the "grandfather clause", as Mr. Armstrong called it, and then subject to reaccreditation. How often is the lab required to submit to reaccreditation?

A. Up until this year, we were submitted  
10 to all -- the IOC accredited labs were submitted to reaccreditation every two years.

THE COMMISSIONER: I'm sorry, every two years?

THE WITNESS: Every two years up until  
15 1989.

THE COMMISSIONER: What happened then?

THE WITNESS: That has changed to once every year, and there is also a proficiency testing program that has been implemented where samples, either  
20 blind or opened, are sent to these labs every four months.

THE COMMISSIONER: So you are constantly under supervision?

THE WITNESS: Right now, yes. As I told you yesterday, the criteria has been considerably  
25 tightened.



MR. BARBER:

Q. Was your lab required to submit to a reaccreditation test in January of 1989?

5 A. Yes.

Q. In a general way, could you describe what the test consisted of or what the reaccreditation material consisted of?

10 A. We did receive eight samples that were to be analyzed within three days, and documentation, proper documentation of graphs, gas chromatograms, mass spectro, and so forth, had to be produced for each of the samples analyzed.

15 Q. Did you know in advance anything about the samples?

A. No.

Q. Might the samples have been normal urine?

20 A. The samples might. There was one sample, actually, which was normal urine, a blank.

Q. Or they might contain some of the banned substances?

25 A. They might contain some of the banned substances, a maximum of three banned substances. For example, to mimic real life situations, a particular



sample might contain an anabolic steroid in its metabolites, as well as a diuretic. It's a conceivable situation, and such samples were indeed sent.

5 Q. In order to perform satisfactorily and retain your accreditation, how successful did you have to be in analyzing the eight samples?

10 A. A hundred percent, plus produce "acceptable" documentation which indicates that the lab, to put it in a way, knows what it's doing, that it's not guesswork or something. That documentation of course is analyzed by the IOC Medical Commission, and then a judgment is made on its quality.

15 In addition to that, the lab has to provide the Commission with its present personnel, facilities, that is instrumentation, space arrangements, all kinds of details which again allow the Commission to make a suitable judgment.

20 Q. In your case, did you submit the data with regard to the eight samples in one volume of material?

A. Yes, I did.

Q. Did you submit the material with regard to the personnel and the facilities and so on in a second volume?

25 A. That's right, yes.



Q. So there were two volumes submitted?

A. Two volumes, approximately 150 pages each, yes.

Q. Do you have with you this morning the  
5 volume of material submitted regarding the eight samples?

A. That's correct.

Q. Do you have with you today the volume of material regarding the facilities and personnel?

A. No, I do not.

10 MR. BARBER: Mr. Commissioner, I wonder if we could leave with you the volume of material which was submitted regarding the eight samples and undertake to provide to you the other volume which unfortunately we didn't bring?

15 THE COMMISSIONER: Let's mark that as an exhibit, then. What exhibit number?

THE REGISTRAR: 213.

THE COMMISSIONER: Make that 213A and the other one will be 213B when you forward it to us.

20 --- EXHIBIT NO. 213A: IOC REACCREDITATION 1989, REPORT OF RESULTS - CANADIAN CENTRE FOR DOPING CONTROL.

25 --- EXHIBIT NO. 213B NOT YET RECEIVED (PERSONNEL)





MR. BARBER: Those are all my questions,  
thank you.

THE COMMISSIONER: Mr. McCreath, do you  
5 have any questions?

MR. MCCREATH: Yes, thank you, Mr.  
Commissioner.

--- EXAMINATION BY MR. MCCREATH:

Q. Professor Dugal, I represent the  
10 Canadian Olympic Association. I have just a couple of  
questions, if I may. You told Mr. Armstrong during his  
examination that your budget at the institute was \$5  
million?

A. Approximately, yes.

Q. We know that your contract with the  
15 Sports Medicine Council is \$448,000 in the past year. I  
think you said 400, but I have your contract here, and I  
believe you will find that it's 448,000. So that's what  
you got from the Canadian end of it, and if you multiply  
20 the number of tests that you did for the NCAA by \$185,  
that is \$1,775,000, which comes to 2,273,000. I was  
wondering, who else do you have a contract with to make up  
the \$5 million?

A. I explained yesterday that INRS Sante,  
25 my research institute, is involved in a number of research



activities, which I mentioned to Mr. Armstrong. The  
doping control research and testing is only one part of  
that. The 400,000 are grants that we received from  
sources such as the Medical Research Council or the  
5 National Science and Engineering Council in other areas  
than drug testing or pharmacology.

Q. Well, what portion of the 5 million is  
set aside for drug testing?

A. If I add up the NCAA contract with the  
10 Sports Medicine Council of Canada's contract --

Q. That comes to \$2,233,000.

THE COMMISSIONER: Is that Canadian?

THE WITNESS: That figure is wrong.

15 MR. MCCREATH:

Q. You said \$185 per test for 15 --

THE COMMISSIONER: American, though.

MR. MCCREATH:

20 Q. American, so the figure is larger than  
that?

A. \$185 U.S. per test for about 1500  
tests, yes.

Q. So the amount is larger than I've said?

25 A. That's per year.



Q. Yes?

A. I don't have to calculate it, but it's approximately \$425,000 Canadian, isn't it?

Q. Well, I don't think there is any point  
5 in getting into it. The point of my question only is to what other organizations do you have contracts with for drug testing?

A. The major organizations are the SMCC and the NCAA. As I mentioned yesterday, there are some  
10 minor, not contracts, samples are sent to us on the a punctual basis by such organizations as Body Building or Power Lifting here in Canada. That amounts to less than 100, 150 samples a year, maybe. It's a minor addition, if you wish, to the major contracts, which are NCAA and SMCC.

Q. Well, those minor contracts or those  
15 minor testings you do, plus the NCAA and the Sports Medicine Council, are those the only doping tests you do?

A. That is correct, yes.

Q. And you said your budget was \$5  
20 million?

A. Yes. I repeat, we are a research organization involved in quite a number of other activities than drug testing and doping control. I mentioned yesterday the genetics and epistemology of  
25 Alzheimer's disease, which is one program involving maybe



22 people. I also have a group in peptide chemistry and pharmacology, which amounts to approximately --

THE COMMISSIONER: I think, Mr. McCreath, 185 times 1500 is 277,000 American. It's about \$300,000 Canadian. Is that about right?

MR. McCREATH: I think it's 3 million, sir, not --

THE COMMISSIONER: No.

MR. McCREATH: 300,000? Sorry.

THE WITNESS: In short, our doping control activities, both testing and research, represent --

THE COMMISSIONER: You are a much better skater than you are a mathematician.

MR. McCREATH: I was just trying to make him look good.

THE COMMISSIONER: So there is still a great gap between 400,000 and 300,000 and 5 million.

MR. McCREATH:

Q. That's what I'm trying to find out, what the rest of the money is spent on. If it's only 300,000 from the NCAA and 448,000 from the Sports Medicine Council, what is the balance of your budget used for?

A. Used for other research activities not related to dope control or drug testing.





Q. I see

A. We are a multi-research activities organization. I have about 110 people --

5 THE COMMISSIONER: Does the university contribute to the --

THE WITNESS: That's right. We get a basic budget from the university, as any other university research organization, and we receive grants or we negotiate contracts with various ministries or with  
10 industrial concerns.

MR. McCREATH:

Q. All right, thank you. I'm going to refer you, Professor Dugal, to an exhibit that was filed  
15 or put in by Dr. Pipe. It's Exhibit No. 55. I don't have copies of it.

THE COMMISSIONER: What exhibit?

MR. McCREATH: 55.

THE COMMISSIONER: We'll get it for you.  
20 Will you show it to Mr. McCreath and make sure it is the exhibit that he has.

Have you seen this, Mr. Armstrong?

MR. ARMSTRONG: Yes, I have. This was marked as an exhibit already. I've already seen it.  
25



MR. McCREATH:

Q. Professor, that document is headed "Sports Medicine Council of Canada Anti-Doping Program Budgets"; is that right?

5 A. That's correct, yes.

Q. All I want to do is run through with you the second and third entries on the sheet starting in 1984-85. You will see that the number of tests made, and that word is written in pen under "Testing Program", there  
10 were 250 tests. Do you see that?

A. No, I don't.

Q. I'm sorry, here.

A. Very good, yes.

Q. And each year after 1984-85 -- the  
15 tests go up to 900 in 1985-86. They start going down in 1986-87 to 850, down to 800 in '87-'88, and up until the Olympics in Seoul, you had done only 684 tests in '88-'89. Were you aware that the number of tests each year that you were doing for the Sports Medicine Council were going down  
20 in number?

A. No.

Q. Who monitored the number of tests that were supposed to be done of the 1200? Did anybody look at that?

25 A. My understanding of this process is



that all national sport governing bodies are required to submit a plan of their foreseen activities to the SMCC and to Sport Canada simultaneously. All this is analyzed to find out whether it is appropriate.

5                   Q.    But you had nothing to do with the monitoring of it? It didn't matter to you how many tests they sent in?

A.    No.

10                  Q.    But if they sent in only 800 instead of 900 or 1200, you still got your \$448,000?

A.    That's right. It was understood to be a global budget, not again a dollars per sample.

Q.    It wasn't like the NCAA thing where you were paid so much per test?

15                  A.    No.

Q.    It was a flat fee, and you got 448,000 in the year 1987-88, and there were exactly, according to this, 800 tests done. Unless my figures are wrong, Mr. Commissioner, 800 tests for \$448,000 comes to \$560 per test. Would you agree with me that that's two-and-a-half times what you are getting from the Americans for the tests?

20

A.    No, the circumstances are different, as I explained.

25                  Q.    Well, you explained to us that the



Americans send their 500 in at given times, but per test that you did, the government paid you \$560 per test?

5 A. That's not -- I indicated I think abundantly previously that that's not a fair way to look at it. The budget is submitted for a certain block of tests. In addition to that, Sport Canada finances research activities to keep the laboratory at its present level and presumably to increase also its research capacities and its competitiveness with the other labs  
10 worldwide.

Q. Thank you, doctor. Would you tell me Professor, please, the reason that the Foothills Hospital in Calgary lost its accreditation?

15 A. The Foothills hospital lost its accreditation in January because it did not properly quantitate the concentration of a compound in a sample. That was considered as being a false negative and therefore led to their suspension.

Q. Who discovered that fact, Dr. Dugal?

20 A. Pardon me?

Q. Who discovered the fact that they failed to do certain things?

A. It was in their report.

Q. In which?

25 A. It was in their report of





accreditation, the report similar to the one I just submitted a few months ago.

THE COMMISSIONER: The mistake wouldn't be in the report? The report was a mistake. Who marked the paper, in other words? Who's the examiner?

THE WITNESS: The result that was reported was not correct.

THE COMMISSIONER: But who is the examiner?

THE WITNESS: The examiners are the members of the IOC, medical commissions, subcommissions on doping and doping and biochemistry of sports.

MR. McCREATH: The members of the club.  
Thank you.

THE WITNESS. I don't think it's a club. I do not think it's a club at all.

THE COMMISSIONER: All right, thank you.

Mr. Pratt?

--- EXAMINATION BY MR. PRATT:

Q. Good morning, Professor. I represent Charlie Francis.

A. Yes, sir.

Q. I would just like to go over a few areas. I know the Commissioner will certainly stop me if I become repetitive. I would like to put some of your areas of evidence-in-chief in some context, if I may.



The first point I'd like to deal with, you mentioned earlier in your evidence yesterday that you had been in charge of establishing the doping, dope testing facilities for the 1980 Winter Olympics in Lake Placid, I think it was?

A. That's correct, yes.

Q. You mentioned, as part of your duties, you spent a couple of years prior to 1980 doing some research in relation to the program, and I took that evidence to mean setting up the laboratory facilities for dope testing in those games.

A. That is correct, yes.

Q. I wonder if we could just explore what that research involved, for a few moments. What type of research is required prior to a major games of that nature in order to ensure adequate doping control?

A. Well, first you have to develop reliable, sensitive, reproducible methods for the detection of every drug, which is part of all the classes banned by the IOC. Moreover, if we are referring to that particular period, we did some research into the applicability of what was then a very new technique called capillary column gas chromatography, and we applied it successfully to the detection of doping agents. Moreover, we refined considerably the methodology for the detection



of anabolic steroids. All of this took about 12 to 13, maybe 14 people. I don't exactly recall. They did research in this area for about two years before the Lake Placid Olympic games.

5                   Just to stress my point, the contract that we had with the Americans at the time was \$1 million for three years, including equipment, personnel, supplies and so forth. At the Olympic Games, we did 450 samples. If you divide that into \$1 million, you will come out to a  
10                   staggering figure, which of course confirms my contention that dollars per sample are a meaningless way of looking at this process.

                  Q.    I'm not pursuing that point, sir. I take it a great deal of the preparation for a doping  
15                   control program at a major games involves programming computers. My understanding is, and I think your evidence is, that the test results themselves are compared with various -- excuse me if I use the wrong terms -- but reference spectra or, in any event, data which has been  
20                   programmed into the computers against which the test results are compared?

                  A.    That's one way of doing it, yes.

                  Q.    So would part of your research endeavor in that time and in fact in any leadup to a major games  
25                   involve that kind of program, that kind of gathering of



data of reference material?

A. Yes, it does involve that, and particularly it also involves doing elimination studies to identify the drugs that are metabolites in order to develop suitable detection and identification technologies. Of course computers are, as you well know, everywhere today. They are used in the laboratory to automate certain functions as well as to acquire data and compare the data which is acquired to data which has been previously stored in memory banks.

Q. How are those memory banks created? How do you know what to program into the computer?

A. The programs are developed and tested by companies which manufacture the instrumentation. We are users of software; we don't develop it.

Q. I see, but the data themselves, do you simply accept the data that are provided to you? When I say "you", I suppose I mean the directors of the IOC accredited laboratories; but in asking you, if you don't have a personal knowledge, I'm sure you will tell me. I'm trying to determine how this is done in general, as well as based upon your own experience. The data that are programmed in, would they be provided to you from the software manufacturers?

A. Not the data, no. They generate their





own data.

Q. All right. How is that generated?

A. What data are you talking about? I don't understand your question.

5 Q. I took it you agreed with me that there are reference data programmed in the computers and that the gas chromatography, the mass spectroscopy, generate results which are then compared against standard data in order to determine whether the results of those tests  
10 indicate the presence of the drugs that you are looking for?

A. I see what you mean, but we personally, in Montreal, and I suspect it is the case of many other laboratories, do not use what you are referring to, in  
15 other words, preconstructed data banks provided by the manufacturers. They can be used as guides, but the authentic reference material data is generated within the lab itself. It's all part of research and development process.

20 Q. An example, perhaps, just to make the point. You mentioned yesterday that diahydrotestosterone was a substance which was not currently being tested for, I believe?

A. M'hmm.

25 Q. I took that evidence to mean that



whether it's in a computer or in some other stored format, the profile of the metabolites of that substance simply were not being looked at during the testing process, and therefore, if an athlete had that substance in his or her system, you simply would not find it because the computer didn't contain it or the reference standard for that substance simply was not contained in whatever data bank you were using to compare the test results with your database?

A. That's part of the problem, I guess, a minor part of it. The main problem is that dihydrotestosterone is a natural product, like testosterone, and it is detectible, but the method has to be defined to distinguish the natural excretion from the result of its exogenous administration. In other words, eventually if there is a test for dihydro testosterone, it will have to be a test designed in such a manner as to obtain some kind of a ratio of DHT, dihydrotestosterone, relative to one or many other endogenous compounds.

Q. Perhaps I can just give you another example. Let's say a chemist in some part of the world synthesizes a new anabolic steroid. These, you've explained, are all synthetic derivatives of the male sex hormone testosterone. I take it from your evidence, sir, that by changing, in what seems to be a relatively minor



way, the molecule, it's possible to derive anabolic steroids with very varying properties?

5 A. Yes, that's correct. There have been a lot of rumors, as a matter of fact, about black market steroids which would be different from those steroids which are known to us, but there is still no proof of that. What you are saying is a possibility.

10 Q. If this is the case or at least a possibility, sir, and you don't know what you're looking for and you don't program the data into the computers prior to a test, is it very possible, sir, that anabolic steroids of a new type will simply escape detection?

15 A. We've got to make distinctions here. If you are talking again about anabolic steroids which are related to testosterone and of the type that I dealt with yesterday, it is probable that they would, if again the computer is properly preprogrammed, detect what I would call an "abnormality".

20 THE COMMISSIONER: Let me put this to you. Before the issue was said to have arisen here, was Furazabol something you were testing for.

THE WITNESS: No, we were not.

25 THE COMMISSIONER: All right, so that if somebody had been taking Furazabol, that would not have been detected?



THE WITNESS: I am going to correct my statement here, sir, because it's more complicated.

THE COMMISSIONER: Well, I want to simplify it, but that's an example arising out of Mr. Pratt's  
5 questioning, because you showed us although there was a marked molecular similarity with Furazabol, and I guess the metabolites would be similar, there is the distinction you showed us.

THE WITNESS: M'hmm.

10 THE COMMISSIONER: If you are looking knowing you are looking to see if this is or is not Furazabol, you were ready to do that, but that came to your attention as a result of rumor or gossip which arose during our Commission, right?

15 THE WITNESS: Yes, that is correct, sir.

THE COMMISSIONER: So let's assume that an athlete is actually on Furazabol and had gone to the 1989 Seoul Olympics, there would have been no test for Furazabol and he would have had a negative finding?

20 THE WITNESS: The answer to this is possibly "yes" or possibly "no".

THE COMMISSIONER: Well, give me one or the other.

25 THE WITNESS: If I can qualify my answer, sir, when it became known that Furazabol was presumably





used as an anabolic steroid, we immediately did an elimination study.

THE COMMISSIONER: But that was post Seoul; that was post to the Olympics?

5 THE WITNESS: Yes, but I'm just trying to explain what might have happened.

We did that sometime in November, and I asked my people to process that sample using our present methodology. It turned out that, as I said before, we saw something abnormal in what is called a total line current chromatogram, and by searching this abnormality, we were able to detect the metabolite of Furazabol. We did after that eventually program in the specific fragments of specific ions of Furazabol and its metabolite, into the computer, and it's now easily detectible. So it's quite possible that depending on the circumstances, if somebody had used Furazabol in Seoul, then it might have been detected assuming that it would not have been interrupted by such a clearance time that we don't know much about --

20 THE COMMISSIONER: Well, let's assume for a minute that somebody knew or thought that Furazabol was not in your computer base at all and could take it; so he could take it right up to within a couple of weeks. Forget about clearance time. It would not have been detected, would it, because it wouldn't have showed up as

25



one of the prohibited drugs?

THE WITNESS: It might, as I just indicated before, and it might not. It would depend on the circumstances.

5 THE COMMISSIONER: That's the type of example that I think Mr. Pratt is putting to you, that --

THE WITNESS: But if I may qualify again, sir, this is perfectly normal. As new data or new rumors become available, we program the machines and so forth --

10 THE COMMISSIONER: I understand now that Furazabol is now in your database?

THE WITNESS: That's right.

THE COMMISSIONER: So there can be no mistake one way or the other, but I think that was the point that Mr. Pratt was making.

15 MR. PRATT: Yes, it was, sir.

THE COMMISSIONER: And I guess the answer is that as soon as you hear something new on the market, you begin to try to inquire into it and to see whether you can test it?

20 THE WITNESS: That's right. You know, we're facing in this particular field today --

THE COMMISSIONER: Well, the difficulty I'm having is all the time and effort you are spending on tests for anabolic steroids when it's not effective,

25



because anybody that takes care and plans it carefully  
enough can avoid detection.

THE WITNESS: Well, our analysis is as good  
as the sample is. If the sample is taken under proper  
5 conditions, our analysis and efforts are perhaps useless.  
There is some component of a deterrent effect, though in  
the present --

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THE COMMISSIONER: Well, I guess if everybody thought that you were not going to test for anabolic steroids, then they would take it.

5 THE WITNESS: Then everybody would be on them, yes.

THE COMMISSIONER: I understand.

THE WITNESS: So, there is a deterrent effect --

10 THE COMMISSIONER: I interrupted you, I think that was an example you were putting.

MR. PRATT: Yes, thank you, sir, that was helpful.

MR. PRATT:

15 Q. Dr. Dugal, as you described in impressive terms yesterday the testing process, I understood it to essentially involve two stages: the screening stage and the confirmation stage, I suppose I will call it. Perhaps you have a better word, but you use  
20 your word.

A. No, it is all right.

Q. The screening stage is used to see if there is anything suspicious about an aliquot?

A. That's right.

25 Q. Now, whether or not if there is nothing





suspicious about it, I take it nothing further is done in relation to that screening?

A. That is correct.

Q. If something is suspicious, then you  
5 move on to the next level of analysis?

A. That is correct.

Q. All right. Therefore the screening stage is extremely important, I suggest to you.

A. Quite so.

10 Q. In that if the screening process itself is not preprogrammed to detect any possible banned substance, then the system is fundamentally flawed? The system of doping control and doping testing?

A. No, I don't think that is the case.

15 THE COMMISSIONER: I am sorry, I didn't hear the question, Mr. Pratt.

MR. PRATT: I am making the suggestion, sir, to the witness that if the screening process is incomplete, then the process of drug testing is  
20 fundamentally flawed.

THE COMMISSIONER: I see.

THE WITNESS: That's not the case. The screening of those drugs which are on the IOC banned list, as I illustrated yesterday, is now pretty much routine in  
25 IOC accredited laboratories.



There are some -- possibly some drugs that will escape us, but that doesn't mean that some drugs, who knows, that might escape us, but that's the -- unfortunately the state of science and technology.

5           For example, we knew in the sixties and seventies that anabolic steroids were being used, misused, and abused, but we had not the means at the time to do anything about it. The technology became available in 1974 and even then it was not very -- it was not perfect,  
10 far from that.

Today we have increased significantly our possibilities in terms of detection limits, therefore increasing our degree of retrospectivity.

We have increased considerably our capacity  
15 to detect the substances accurately. So, progress is being made, but it is a natural, I think it is -- it is a fact of life that some athletes may now in the future resort to some substances that we cannot presently detect by the current state of technology. But that can be  
20 improved upon as time goes by. Perfectly normal situation.

MR. PRATT:

Q. I appreciate your comments very much.  
25 And you expressed a view earlier, as many people have,



that random, unannounced drug testing is very much a part of the answer to the problems that this Commission is dealing with.

5 I would like to suggest to you, sir, that the science of drug testing, in fact, is I think you have explained, if I may fairly summarize it, is far from an exact complete science at the present time?

A. No, I did not say that.

10 Q. I wasn't suggesting you did, sir. In fact, I --

THE COMMISSIONER: It was Mr. Pratt suggesting that.

MR. PRATT:

15 Q. I appreciate your candor. Would you agree with that that it is not an exact science?

A. I do not agree at all.

20 Q. Would you agree that it is not an infallible way of determining whether a urine sample contains any of the banned substances on the IOC list at the present time?

25 A. No. If a drug is or a metabolite or metabolites is or are present in a concentration that is not lower than the current detection limits, which are very low indeed, then we will detect it and identify it.



Q. If you know about the drug and you are looking for it?

A. That is correct, but we are looking for just about everything we can look for.

5 Q. But nonetheless, every year it would appear, according to the evidence here, that there is some new drug that either rumoured or actual which appears to be not tested for?

10 A. There are rumours, but they are just that, rumours.

Q. In fact, dihydrotestosterone is one which we have been discussing over the last day?

15 A. Yes. And as a result of the work of this Commission, we are grateful to know that now and we are going to develop testing for it.

20 A test has actually been developed in Professor Brooks' laboratory in London. And that test as any further development is not perfect, it needs to be improved upon, and eventually assuming that DHT is used at all, which I personally doubt, then we will be able to detect it. Again I am repeating myself. This is progress which is natural in science.

Q. Yes, I quite appreciate your comments, sir. I simply -- all right, perhaps I will move on.

25 You referred, sir, to the drug testing





endeavour as a cat and mouse game. I take it you perceive yourself and the other IOC accredited labs as the cats and athletes who are using banned substances as the mice.

5 A. No, not quite. Again, my -- I don't know what you mean by lice exactly, but --

Q. Mice, I am sorry.

A. Mice?

Q. Cat and mouse game.

10 A. It was a comparison that escaped me yesterday. It was a figure of speech. It is -- it is known by this Commission, the evidence is clear, that some athletes are trying just about everything either to increase the performance or to bypass the test. And my remark was made within that context.

15 Q. I appreciate it, sir. You mentioned a few moments ago that you and others in your position respond to rumours and data relating to drugs which are being used or may be used and used those sources of information to improve your detection system.

20 A. Yes.

Q. All right. What type of intelligence gathering do you and the IOC Medical Commission carry out in relation to what drugs athletes may be using around the world?

25 A. We have no Secret Service, if that's



what you mean, but they are on the Commission. There are quite a number of people who are privy to certain type of information and that information, when it becomes available, is eventually shared.

5 Q. Even if this information is rumour or unsubstantiated?

A. Well, the -- if the rumour turns out to be true, then we act upon it after verification. But if we hear, for example, that a drug, presumably a new drug  
10 is favoured in one country, in one region, we will seek information and act upon it.

Q. So, but --

A. It is a natural process of the international scene.

15 Q. So, that those people like yourself who run the laboratories are in fact the members of the Medical Commission or your subcommittee have a substantial body of knowledge, including rumour, relating to the use of banned substances throughout the world by athletes?

20 A. We have a -- yes, body of knowledge, indeed, yes.

Q. You mentioned that your laboratory produces automatically steroid or endocrine profiles. And you discussed that with Mr. Armstrong yesterday.

25 A. Yes, I did, but I think I also deferred



to Professor Donike for the fullest information about it.

Q. Yes, I look forward to that, but nonetheless are you aware of whether labs in addition to your own IOC accredited labs produce those profiles as part of the testing process?

A. I don't understand your question.

Q. I think you mentioned, sir, that your laboratory and the machinery and the equipment that you have automatically generates these profiles.

I was asking you whether you had any knowledge as to whether the other laboratories accredited by the International Olympic Committee also produced those profiles?

A. Yes. Again the method which detects anabolic steroids, if properly constructed program, can detect the endogenous steroid profile as well simultaneously. There is one single method.

Q. We will defer to Professor Donike for a further discussion of that issue.

A. Thank you.

Q. Now, I would like to know, sir, if you might tell me, you mentioned at one point yesterday there is sometimes a residuum of sample left after the aliquots are taken and tested?

A. Yes.



Q. Is that always the case?

A. No, not necessarily. If, for example, at the collection station an insufficient volume of urine has been collected, then we might exhaust what is in the bottle in aliquoting for the procedures. We need approximately, if memory serves me well, 35 milliliters to conduct a normal screening process.

If for some reason the doping control officer at the station has collected only 30 millilitres in the first bottle, then we are short of five. And that's -- it is an unfortunate situation which did not happen very often.

THE COMMISSIONER: I am assuming if this is a competition, you are talking about the A sample, using all of it up, because you always divide the sample between A and B, is that right?

THE WITNESS: That's right.

MR. PRATT:

Q. That was my next question, sir. What happens to the B samples if they are not required to be opened to confirm a test of the A sample?

A. The B samples, as I indicated yesterday, are securely stored as soon as they are received at the laboratory. And they are destroyed. If





there is no positive result of that part on the corresponding A sample, they are destroyed within 90 days.

Q. If there is a residuum left from the A sample, what happens to that, sir?

5 A. If the sample is negative?

Q. If the sample is negative.

A. That is also destroyed.

Q. It is destroyed?

A. Yes.

10 Q. So, there would be no archiving, I guess if I can put it that way, of urine samples taken in the past?

A. Only if they were positive. If we have a positive B sample, for example, the residue might --  
15 will be kept in case legal proceedings would require us to provide it. That's stored also under secured conditions.

Q. How far back in time, sir, has your laboratory been generating steroid or endocrine profiles as a routine part of your testing?

20 A. Anywhere between four and five years.

Q. So, that presumably if science advanced to the stage of being able to analyze those and draw conclusions relating to past use of various substances and then the IOC Medical Commission and whoever they want to  
25 share that with would be able to make certain conclusions



about the use of those substances over that period of time?

5 A. Methods would have to be adapted in each of the laboratories involved. Experience would have to be gained by these laboratories in interpreting such profiles and generating good data. And that's again how science goes and progresses.

10 Q. You mentioned this morning, and I will just touch on it briefly, the element of judgment and interpretation in certain of the tests.

15 I understand from your evidence earlier that there really are some tests where there is no interpretation involved, it is quite a clearcut matter. Sometimes, however, in certain tests, there is an element of judgment.

20 And I take it from your comments relating to Furazabol that in a case of even an anabolic steroid which has not programed into the computer, it would be possible using professional judgment to find substances which were not programed in or expected to be there?

A. It is possible to do so, yes.

25 Q. Given enough time and the desire to do it, presumably, that kind of approach would generate more positive results than a more routine approach whereby this screening is used before any further investigation is done



into the aliquot?

A. I am sorry, but would you mind repeating your question.

Q. I am not sure I can. I thought it was a pretty good question, actually.

THE COMMISSIONER: If it was so good, you should be able to remember it.

MR. PRATT:

Q. I will see what I can do. If you have a screen which triggers something which leads to the next stage of investigation, I take it, sir, that that is a relatively routine procedure?

A. Relatively routine, yes.

Q. Relatively routine. So, the gas chromatographs and the readouts that you showed us yesterday will show a spike at the proper retention time and if that matches up to your data base and the expected results, you will draw a conclusion routinely and either treat it as a positive or at least either further process it using mass spectroscopy or you will assume that there is nothing wrong with that aliquot and it will not be further investigated?

A. No, if there is a peak in the chromatogram, it is either known or unknown. If it is



known, we can make an approximation as to its identity, then we can go further on to mass spectrometry as I explained yesterday. If the peak doesn't correspond to anything we know of or which is in the data bank or which  
5 looks suspicious and so on and so forth, we then go on also to mass spectrometry to find out what it is.

Q. But the element of skill and experience and judgment, sir, I suggest is such that if you were -- if you as an expert hypothetically were examining a sample  
10 and using all the skills and the intuition and the investigative techniques at your disposal, you would be able to find much more in a sample or any skilled person with that kind of -- with that kind of expertise than a relatively routine and mechanized approach to testing the  
15 same sample?

A. Yes, that is possible, certainly.

Q. I take it also, sir, that the thoroughness and the completeness of the test would depend on the number of screens in the first instance?

A. Of course. I indicated that yesterday that to properly screen for all drugs or all classes of  
20 drugs banned by the IOC there are eight different procedures that are implemented. It is not a single test, in other words.

Q. If you were able, sir, to use 16 or  
25





some other higher number of procedures, would that produce a better test?

5 A. At the present time, no. If other drugs were to be banned, for example, if there were evidence of their misuse, and if a screen for them was not -- could not be adapted to the present screening procedures, then we would have to develop the ninth one, or tenth one perhaps and so on and so forth.

10 Q. If there is something that is completely unknown that is being used, then the present screening system simply wouldn't catch it?

15 A. No, not necessarily. If it is a drug that has the chemical and physical features that make it amenable to the several procedures we use, it might become detectable.

That is how Probenecid was first detected in the first place. It was totally unknown that it was being used, but it showed up in the procedures we are presently using.

20 Q. I just touch on another matter, sir. I would like to explore briefly the relationship with what I will call your clients. You have called them your clients, but I think you had some hesitation into doing it, namely the NCAA., Sports Medicine Council of Canada, and from time to time the weightlifting and power lifting

25



associations.

How would you describe, sir, your reporting relationship to those clients in relation to positive drug tests?

5                   A.    I am afraid I am not getting the sense of your question.

                  Q.    When a test is positive, according to your analysis, the analysis by your laboratory, is it your obligation to do anything more than to report the result  
10                   of the test to that client?

                  A.    It is not our only obligation. We do report of course the presence of something by an official certificate of analysis. And part of our professional activities include helping these people in reaching an  
15                   eventual decision.

                  Q.    But if a client were to make a decision that for whatever reason a test performed by your laboratory should not result in punitive action, is it part of your obligation to take that further and to  
20                   overrule or disagree with your client?

                  A.    Of course. We do that even before it happens. We -- the code of ethics, which by the way I was instrumental in devising of IOC accredited laboratories, forbids them to accept samples from unknown sources or  
25                   from people who would try helping athletes to cheat or



calculate what have been called here the clearance times.

We do not work with such people. We work for professional organizations which are in the business of deterring athletes from misusing drugs.

5 THE COMMISSIONER: I think Mr. Pratt is saying let's assume you have a track and field athlete, and you have a finding, a positive finding. Take the Canadian National meet, a positive finding of someone in track and field. You report that to the Track and Field Association, don't you?

10 THE WITNESS: No, we do not, Mr. Commissioner, we report that --

THE COMMISSIONER: Sports Medicine Council -- I see, right, it is all reported to the Sports Medicine Council.

15 THE WITNESS: That is correct. And the Sports Medicine Council in turn --

THE COMMISSIONER: So, your duty is to report to the Sports Medicine Council any findings?

20 THE COMMISSIONER: That's right.

THE COMMISSIONER: Any positive finding?

THE WITNESS: That's right.

MR. PRATT: Whoever the client may be.

THE COMMISSIONER: Pardon?

25 MR. PRATT: Whoever the client may be.



THE COMMISSIONER: Or the NCCA, yes.

THE WITNESS: That's right.

MR. PRATT:

5 Q. If the client -- let's take another example. If a testosterone test for example produced a 6.1 ratio and the client felt that this should not merit punitive action --

10 THE COMMISSIONER: You have to identify the client, now. Sports Medicine Council is a client?

MR. PRATT: Any one, any one of them. Let's say the Sports Medicine Council --

15 THE COMMISSIONER: He doesn't have that, I think, if I am right. As far as Canada is concerned, all your reporting goes directly to the Sports Medicine Council, not to the sports federation?

THE WITNESS: That is correct. The sports federations and Sport Canada in turn receive the positive report from the SMCC, yes.

20 THE COMMISSIONER: And they in turn would report it to the relevant sports federation.

THE WITNESS: That is correct. And in turn the national sports federation --

25 THE COMMISSIONER: Or the individual athlete, I guess.





THE WITNESS: Yes. If it is a positive result, then the national sport governing body would report it to the international federation. There is a chain of events that take place.

5 THE COMMISSIONER: Are you asking, Mr. Pratt, whether if Dr. Dugal reports a finding, a positive finding to the Sports Medicine Council, they can say, well, we won't accept that, it is not good enough?

10 MR. PRATT: Well, I guess what I am trying to get at and perhaps I can get at it a little bit better --

THE COMMISSIONER: You are involved in track and field --

15 MR. PRATT:

Q. As an example, you have talked about the testosterone to epitestosterone ratio, and there is a certain experimental error and a level of tolerance.

20 Now, notwithstanding that, if the result is 5.9, it is a negative. If the result is that nothing happens, the Sports Medicine Council of Canada presumably is not told, or perhaps we should ask you, is the Sports Medicine Council of Canada told that there is a close call?

25 A. Yes, it is. Actually it has happened



on a number of occasions where I -- although a sample was negative, then I have recommended to take another sample from this athlete in the future.

5 This is how the weightlifters, for example, were tested in Vancouver three weeks or two weeks after they were first tested in Montreal. There was something suspicious. And I took the liberty, initiative, of reporting that fact.

10 Q. All right. So, that's really what I was asking, sir. Your reporting obligation is not simply to your client, it is not simply that it is positive or negative, but they are given something, I take it, more complete in order to allow them to assess the possibility that although there is no positive test, that there may be  
15 some thing of interest going on?

A. Quite so, quite so.

Q. How complete would that reporting be in the case, for example, of the Sports Medicine Council of Canada?

20 A. Well, let's take for example the weightlifting case in Montreal. We did receive four samples out of several that again looked suspicious. These people were en route to Seoul via Vancouver. I reported the fact these samples were very suspicious and  
25 given the circumstances, we were about a week before the



Olympic Games, I suggested to the Council that these athletes be tested again because their specimen was as far as I was concerned invalid and therefore unsuitable for a proper diagnostic of absence or presence of steroids.

5                   Q.    Have you, sir, ever made a similar recommendation or report to the Sports Medicine of Canada relating to any of the Mazda Optimist group of sprinters?

                  A.    I don't know. What we receive at the lab are coded samples. We don't know the identity of the athlete. I cannot answer your question.

10

                  Q.    Have you ever -- on how many occasions have you made a report to the Sports Medicine Council of Canada relating to that kind of a concern that a sample although it tested negative gives you some reason to report to the Sports Medicine Council of Canada that there may be anabolic steroids involved?

15

                  A.    You will have to excuse me for my lack of recollection here but in the last five years maybe this happened 8 or 10 times, approximately.

20                   Q.    Now, just one final point, sir. You have referred in a number of occasions to the development of novel tests by Professor Brooks and Professor Donike and others. You have mentioned the ongoing work on human growth hormones, blood doping - there is something else, testosterone, you have discussed has been dealt with by

25



Professor Donike. These are all endogenously produced substances, am I right?

5 A. Human growth hormone is. Blood doping is a practice of retransfusing your own blood or that of another person of the same group.

Q. But the difficulty is that the blood that is used was originally produced endogenously?

A. Yes.

10 Q. And testosterone is the same, it is an endogenous-produced substance?

A. Yes. So, is human growth hormone.

15 Q. And human growth hormone. Who decides, sir, when a test to detect those substances, which are as we have heard substances or practices which are banned, when the test is sufficiently reliable to be used to generate positive tests following a dope test?

A. The IOC Medical Commission as a whole on recommendation of its subcommission on Biochemistry of Sport after considering the data available.

20 Q. Is this based upon published papers?

A. Sometimes yes, sometimes not.

25 Q. So, that the Medical Commission and its constituent from time to time make scientific conclusions or conclusions about the scientific validity of a test without having published that and exposed that to the





normal scientific scrutiny?

A. It may happen in certain circumstances if we want to act fast to stop an abuse that's been documented. And after that, of course, eventually that material is published and submitted to the normal system.

MR. PRATT: Thank you, those are my questions, sir.

THE COMMISSIONER: Thank you. Mr. Bourque.

--- EXAMINATION BY MR. BOURQUE:

Q. Professor Dugal, my name is Bourque and I represent the Canadian Track and Field Association.

A. Good morning.

Q. I want to begin by asking if you recall working with a technical director of the CTFA, a Mr. Tom McWilliam, on the development of the CTFA Standard Operating Procedure Manual for Dope Testing back in 1982?

A. Yes, I do recall it.

THE COMMISSIONER: I am sorry, '82, Mr. Bourque?

MR. BOURQUE: 1982, yes.

THE COMMISSIONER: Yes.

MR. BOURQUE:

Q. From your experience on the Sport



Medicine Council of Canada Advisory Committee on Doping, can you tell us was Mr. McWilliam made one of the original members of that committee?

A. Yes, he was.

5 Q. And can you tell us as well did the CTFA Standard Operating Procedure that the two of you worked on in 1982 form the basis for the Sport Medicine Council of Canada Standard Operating Procedure developed two years later to be used for all Canadian National Sport  
10 Governing bodies?

A. That is correct. It was probably the principle document -- others were used, but it was probably the principle document that was used as a basis for the development of the SMCC's Standard Operating  
15 Procedures.

Q. Now, are you aware of efforts made by the CTFA prior to 1982 in an attempt to induce Sport Canada to become involved in the doping issue?

A. No, I am not. I don't recall anything  
20 like this.

Q. All right.

A. I must tell you that I became actively involved in this process only late in 1983 with Sport Canada and eventually with the SMCC.

25 Q. Now, just to change topics here, there



was some reference to the positive tests yielded by three Canadian track and field athletes in 1986, Messrs. Gray, Dajia and Spiritosa. Did you participate in the investigation conducted by the OTFA and CTFA into those positive tests?

A. The only element of my participation is that which I indicated earlier. I was invited as a witness, if I may use that word, to an appeal committee apparently that sat in late December of 1986 regarding these gentlemen's appeals.

Q. And did you tell any of these three athletes or did you tell the investigative committee at any time that the 19 nortestosterone findings the athletes produced could not have resulted from Dianabol use?

A. Yes, I said that.

Q. And can you tell us then what anabolic steroids you would expect such a finding to result from?

A. The trade name you mean?

Q. Yes.

A. Durabolin or Deca-Durabolin, amongst other trade names.

Q. The IOC banned list, which I believe is Exhibit 18, makes reference to 19 nortestosterone as being a derivative of a steroid name Anabol. Are you aware of that?



A. I will have to look at that list, if you don't mind. There is no trade names on the official IOC list.

5 THE COMMISSIONER: You had that to give, Mr. Armstrong, did you not? You were using it yesterday, perhaps you could give --

MR. ARMSTRONG: Yes.

MR. BOURQUE: It is already out, I believe.

THE COMMISSIONER: You had your own copy.

10 MR. ARMSTRONG: I have my own copy.

THE COMMISSIONER: You might assist Mr. Bourque, Mr. Armstrong.

MR. BOURQUE: Thank you, sir.

15 THE COMMISSIONER: It is probably Exhibit 18, isn't it.

MR. ARMSTRONG: Yes.

MR. BOURQUE: May I have your indulgence for a moment, sir.

MR. BOURQUE: Exhibit 34, I am sorry.

20 THE COMMISSIONER: Exhibit 34. It appears elsewhere, too.

MR. ARMSTRONG: The official list is certainly Exhibit 18. Mr. Bourque wants the unofficial Sport Canada list.

25





Q. Now if you will refer to page 2 of this exhibit produced by the Sports Council of Canada, you will see a number of groups of banned substances, including the group headed "Anabolic Steroids". If you look down that alphabetical listing, you will see Nandrolone or  
5 19-Nortestosterone?

A. That is correct.

Q. In parenthesis afterwards, there appear the names Durabolin and Deca-Durabolin, which you have  
10 mentioned, and in addition the name Anabol. Is that name, Anabol, one you are familiar with?

A. I may have seen it, but right now memory escapes me completely. I don't know whether this is a Canadian, American or foreign product.

15 Q. So I take it you are unable to say whether it was in any way related to Dianabol?

A. Well, if Anabol contains Nandrolone, if it's a trade name for Nandrolone, it probably doesn't contain Dianabol, which is also known as methandienone or  
20 methandrostenolone. It is highly unlikely that the commercial preparation would contain the two anabolic steroids, especially those two, because Nandrolone is used mainly by injection, and Dianabol is an oral preparation.

Q. Very good. Now in your evidence  
25 yesterday and again today, you touched on the issue of



clearance times or elimination periods, as you sometimes refer to them. I believe your evidence yesterday, especially, was to the effect that the duration, the length of these times, could be influenced by a number of factors?

A. That is correct.

Q. In August 1986, did you write a memorandum to Wilf Wedman, then President of the Canadian Track and Field Association, on this subject? I produce a document for you now.

THE COMMISSIONER: Has he identified it? We will mark it an exhibit when he does.

THE WITNESS: Yes, sir, this is a document I wrote back in August '86.

THE COMMISSIONER: All right. What's the exhibit no., please.

THE REGISTRAR: 214.

--- EXHIBIT NO. 214: AUGUST 1986 MEMO FROM DR. DUGAL TO WILF WEDMAN, PRESIDENT OF THE CANADIAN TRACK AND FIELD ASSOCIATION.

MR. BOURQUE:

Q. Did this memorandum arise out of



discussions you had with Mr. Wedman respecting the positive findings of Mr. Gray, Mr. Spiritosa and Mr. Dajia?

5 A. That is correct. As I recall, Mr. Wedman called me at the office asking me a certain number of questions, and these questions are summarized there on the first page. We had a lengthy phone conversation, as I recall, and he asked me to summarize what I told him in writing, which I did as soon as I could, and the result is  
10 this document.

Q. Now one of the four questions, namely the third one, deals with what is referred to there as the "retrospectivity of the test". Do I correctly understand you to mean by "retrospectivity" the period of time that  
15 one of your tests conducted in your laboratory can look back, as it were, and detect steroid use?

A. That's correct, yes. That's the jargon that is usually used for this concept.

20 Q. If we were to refer to elimination periods or clearance times as being co-extensive with what you call "degree of retrospectivity of a test", would we be in error?

A. No, you would not.

25 Q. I note at the bottom of page 4 and again on page 5, you address the issue of retrospectivity



or clearance times?

A. Yes.

Q. I note that in the last paragraph on page 4, you state:

5 "This is a difficult question because very  
little data exist, except testimonial  
evidence from athletes who admitted having  
taken their last dose of some anabolic  
steroid several weeks or several months  
10 before being sampled for the doping control  
test."

Now that's obviously a view you held in August of 1986.

Is it a view that you still hold today?

15 A. Yes. There is more data, but there is  
very little data still.

THE COMMISSIONER: Where were you reading  
from, Mr. Bourque?

20 MR. BOURQUE: I'm sorry, the last paragraph  
on page 4, Mr. Commissioner, the first sentence of that  
last paragraph.

THE COMMISSIONER: All right. Thank you.

MR. BOURQUE:

25 Q. Then you proceed to itemize a number of  
factors which might influence the length of the clearance





time respecting a particular athlete or a particular steroid, and more specifically, you mention at the bottom of page 4 the dose, the frequency of administration and the length of treatment. Are those all factors that would bear on the length of the clearance time an athlete would need to get off this steroid and avoid detection at testing?

A. Yes. Of course, it's a logical conclusion.

Q. Again at the top of page 5, you list a number of other factors, age, sex, lean body mass, health status, all of which affect patterns of urinary elimination. Again, are these all factors that would bear on the length of duration time for a particular athlete using a particular steroid?

A. It's a general statement about drugs which is applicable to anabolic steroids.

Q. All right. Now I notice that the top paragraph on page 5, the second and last sentence in that paragraph, beginning in the fourth line with the words "Some anabolic steroids..." Are you with me? "Some anabolic steroids are excreted rapidly..." Before we proceed with that sentence, can you identify for us now what steroids you had in mind when you wrote that?

A. In particular, methandienone and



Stanozolol.

Q. Can you tell us at this time what kind of elimination period you had in mind when you indicated to Mr. Wedman in August 1986 that these were steroids that could be excreted rapidly?

A. Taking into consideration what you just read in the first paragraph, at the time, I would say anywhere between three to five weeks, maybe six.

Q. Three to five weeks?

A. Approximately, yes. I've got a hard time remembering now. It's a few years ago.

THE COMMISSIONER: Are you saying that under those circumstances, the metabolites wouldn't show up either? Are you talking about the substance or metabolites?

THE WITNESS: No, substance "and" metabolites.

THE COMMISSIONER: Nothing might show?

THE WITNESS: That's right. This was purely a general statement here indicating that different steroids have different half lives or different lengths of persistence in the body. It's a known fact.

MR. BOURQUE:

Q. Now to carry on with that sentence at



the top of page 5, I will just reiterate the first part and read the sentence in its entirety.

"Some anabolic steroids are excreted rapidly while others persist in the body for quite a long time."

Can you tell us now, if you recall, what anabolic steroids you had in mind when you said that "others persist in the body for quite a long time"?

A. Yes, there are the long-chained esters of Nandrolone, in particular, and the long-chained esters of testosterone as well.

Q. Is it possible for you to tell us with respect to the steroids Anavar and Furazabol which group they would fall into, those that are excreted rapidly or those that persist for a long time in the body?

A. About Furazabol, there is too little data for me to give you an answer. Anavar -- I'm just looking for the generic name here. Oxandrolone. Yes, that has a fairly short half life.

Q. Would that be comparable to Stanozolol and methandienone that you indicated?

A. There is no real hard data on this. Probably comparable.

Q. To go back to those steroids which persist in the body for quite a long time, you gave us the



long-chained esters of both Nandrolone and testosterone as examples. Can you tell us what you mean by "quite a long time"?

5 A. Well, if you go into the following paragraph, you will get the answer to this question. I cite a letter from Professor Donike in which he cites some cases where the metabolites of Nandrolone could be detected 10 months after a single administration of 100 milligrams of the long-acting ester of Nandrolone, but  
10 this is testimonial evidence.

THE COMMISSIONER: I understood a lot depends on the method by which the drug is taken. I thought an oil-based steroid lasts longer. It takes a little longer in the system than others; is that right?

15 THE WITNESS: That's correct also. It depends on the drug itself. It depends on the pharmaceutical preparation in which it is administered.

MR. BOURQUE:

20 Q. I notice the next sentence indicates yet a further factor in that you attribute this unusually long degree of retrospectivity that the Nandrolone was taken by way of intramuscular injection?

A. In the form of an ester and an orderly  
25 preparation, yes.





Q. Generally speaking, would oil-based injectables remain longer in the system than water-based oils?

A. Yes, generally.

5 Q. We've heard evidence from one coach and from various athletes and indeed from one doctor that certain anabolic steroids used by the athletes and presumably their metabolites could be eliminated from the body within precise and relatively short periods of time,  
10 namely 28 days. Generally speaking, are elimination periods as precise as this?

A. No.

Q. Generally speak, are clearance times as predictable as this?

15 A. No.

Q. Let me ask you, in your opinion, do athletes who repeatedly use anabolic steroids such as Dianabol, Anavar or Stanozolol in cycles ranging from two to six weeks during the fall and then the spring and the  
20 summer of each season over a period of several seasons, do such athletes incur a significant risk of detection at a tested competition if they simply rely upon a constant elimination period of 28 days?

A. I don't know. I cannot give a definite  
25 answer to this. Maybe yes, maybe no.



Q. Now with respect to Exhibit 214, the memorandum you wrote to Mr. Wedman, did you have any further communication with the CTFA on the subject of retrospectivity or clearance times beyond this memorandum and your telephone conversation with Mr. Wedman? I'm sorry, I guess I should include your evidence before the Investigative Committee.

A. I'm trying to remember, and I don't remember having had further communications on this particular subject.

Q. You told us this morning about an article you published 15 years ago in 1974 in which you expressed the view that out-of-competition testing was desirable?

A. That is correct, yes.

Q. Can you tell us where that article was published? Was it published in some scientific journal or sport publication?

A. It was a general article on the pharmacological aspects of drugs in sports. It was a review article at the end of which I expressed the opinion with one of my colleagues, who was co-author, that it seemed to us that out-of-competition testing was the best way to control anabolic steroids.

Q. Can you provide us with the citation



for your article?

A. Certainly, yes.

Q. And if you can't now, would you undertake to provide it for us?

5 A. If I could have my C.V., I could give you, immediately, the reference.

THE COMMISSIONER: Mr. Armstrong?

MR. BOURQUE: I never received a copy of that. It's a good day for it, Mr. Armstrong tells me.

10 THE WITNESS: Thank you.

THE COMMISSIONER: There is a list of publications in the C.V.

THE WITNESS: It is publication no. 10. It's called "Pharmacological Aspects of Doping in Sports". It was published in the proceedings of a future  
15 presentation on spectroscopy and drug abuse, edited by the Spectroscopy Society of Canada and the Non-Medical Use of Drugs Directorate of the federal government in 1975. Pages 82 to 116.

20 MR. BOURQUE:

Q. To your knowledge, was that article ever reprinted in some publication that might find its way onto a coffee table in a doctor's waiting room?

25 A. I don't think so.



Q. You also told us this morning, and I'm using your exact words, I believe, there was a gradual realization over the 1980s that only the careless get caught. I take it by that you are referring to a gradual awareness or a realization that in-competition testing was not anywhere near as effective as out-of-competition testing? Same realization?

A. Yes. When I said only the careless and ill-advised get caught, I should have put that in quotes. It's a direct quote from Sir Arthur Gold, who likes to repeat the sentence because it's a catchy phrase.

It seems to me that the combination of competition and out-of-competition testing is the best answer or one of the answers to this. It's unfortunate because I would like to see athletes being convinced in other ways than testing, become convinced in other ways not to take drugs. But education doesn't seem to be as effective as repression, apparently. So again, a consensus has developed to that effect internationally, in most international federations and the IOC, down to several national Olympic committees and federations.

Q. The distinction I'm interested in is the distinction between out-of-competition testing and in-competition testing as a means of detecting anabolic steroid use.





A. Yes.

Q. Particularly amongst track and field athletes in Canada. A decade is a rather long time for an awareness to sink it, however gradual it may have been.

5 I'm wondering if you can, as an observer of the Canadian anti-doping scene and an active participant since late 1983, I'm wondering if you can give us a more accurate idea when you feel this idea generally took hold in the Canadian administration of amateur athletics?

10 A. It certainly got a hold after -- it began perhaps to be discussed after Canada established its drug testing program in 1984. Before 1984, there was no Canadian doping control program as such.

THE COMMISSIONER: I think '83 was --

15 THE WITNESS: Or '83, yes.

MR. BOURQUE: Well, December 1983 is the policy, sir. '84 is the implementation of it, which the Professor is referring to.

20 THE WITNESS: Well at that moment, you see, and I lived through these times, we were pretty busy putting together the logistics, defining athletes' rights, mechanisms of appeals and so on and so forth. So perhaps the preoccupation was oriented at the time more towards competition testing because it was easier to test athletes  
25 in that particular context. Out-of-competition testing



was seen at the time to be fraught with logistical and legal problems and discussions continued.

The same thing is true internationally. There are many, many problems to solve. To give you an  
5 idea of how many problems there are to discuss, there was a three-day conference held last November in Europe on this single subject alone: What drugs to test for? When? What should be a reasonable time of notice?

THE COMMISSIONER: Was that Monte Carlo?

10 THE WITNESS: Bolanga (phon), Sweden.

MR. BOURQUE:

Q. That was last October, 1988?

A. October or November.

15 Q. Are you aware of whether CTFA delegates were present at that?

A. Yes, I was there, and I saw two CTFA delegates.

20 MR. BOURQUE: I have no further questions of this witness.

THE COMMISSIONER: Mr. Armstrong, any re-examination?

25 MR. ARMSTRONG: I have a couple of questions. What I'd like to do is keep my promise of yesterday morning to have the photocopies of the slides



marked as exhibits, and if we could do that at 2:30, I could ask a couple of questions.

THE COMMISSIONER: We will adjourn until 2:30.

5 --- Luncheon recess.

THE COMMISSIONER: Mr. Armstrong.

MR. ARMSTRONG: Thank you, Mr.

Commissioner. Before I proceed, Mr. Barber has indicated he has a couple of questions by way of re-examination.

10 THE COMMISSIONER: Sorry, Mr. Barber.

--- RE-EXAMINATION BY MR. BARBER:

MR. BARBER:

15 Q. Dr. Dugal, in answer to questions posed to you by Mr. Pratt, you gave an answer in which you said that the IOC accredited lab, or your lab, would find a banned substance if it was present in sufficient quantity?

A. Yes.

20 Q. I wonder if you could give to the Commission an indication of what that means? How much substance must there be and how much volume in order for you to be able to detect it?

25 A. If we are talking about anabolic steroids, we use anywhere between 2 and 5 milliliters of urine, depending on specific gravity, notably, and the



sensitivity of the assay average. It's an average for all anabolic steroids. It's of the order of one nanogram per milliliter of urine.

5 Q. I'm not familiar with what a nanogram is. Can you translate that into some volumes that I as a non-scientist could understand?

A. Yes, I could make a small calculation here. It would be the equivalent of about a tablespoon full of sugar diluted into 6,000 gallons of water.

10 Q. How much?

A. Sorry, 6 million.

Q. So a tablespoon of sugar in 6 million gallons of water?

A. Approximately, yes.

15 Q. Your machine can detect that?

A. Yes.

MR. BARBER: Thank you, sir.

20 THE COMMISSIONER: Just following that up, what you are testing for is the banned substance which is on the list. You are not just looking for a banned substance at large? When you are screening, you are looking for what is on the banned Olympic list?

THE WITNESS: We're also look for known, related chemicals.

25 THE COMMISSIONER: Which are also banned?





THE WITNESS: That's correct, sir.

THE COMMISSIONER: But if there is a drug there in the system which is not banned, you don't look for it and you wouldn't find it?

5 THE WITNESS: If it's not banned, we wouldn't be looking specifically for it, but as I indicated yesterday, there are a number of compounds, notably non-steroidal, anti-inflammatory drugs and anti-histamines, and so on and so forth, which are  
10 detectable in the present procedures the way they are devised.

THE COMMISSIONER: Mr. Armstrong.

MR. ARMSTRONG: Yes, thank you.  
First of all, I propose now, Mr. Commissioner, to file as  
15 the next exhibit the photocopies of the first series of overheads that Professor Dugal showed to you yesterday morning. If you could give me an exhibit no., I propose it be that number.

THE REGISTRAR: 215.

20 MR. ARMSTRONG: I propose that it be 215A, and that is the series of slides or overheads that begin "Testosterone - The Transformation of a Boy into a Man". We just have one copy at the moment. We'll get you, sir, photocopies for your own file.



--- EXHIBIT NO. 215A: SERIES OF SLIDES AND OVERHEADS  
BEGINNING WITH "TESTOSTERONE - THE  
TRANSFORMATION OF A BOY INTO A  
MAN".

5

THE COMMISSIONER: 215B will be the --

MR. ARMSTRONG: 215B is the series of  
slides relating to the testing methodology. It begins  
with an overhead entitled "Analysis of Steroids by GC-MS".

10

THE COMMISSIONER: Thank you.

--- EXHIBIT NO. 215B: SERIES OF SLIDES AND OVERHEADS..  
BEGINNING WITH "ANALYSIS OF  
STERIODS BY GC-MS".

15

MR. ARMSTRONG: I just have a couple of  
questions, if I may, Mr. Commissioner, of Professor Dugal.

--- RE-EXAMINATION BY MR. ARMSTRONG:

20

Q. You said to Mr. Pratt that your  
estimate would be that in the last five years there may  
have been eight to ten situations where you had a  
suspicion that your results indicated anabolic steroids,  
although you weren't in a position of being able to make a  
positive finding, but that you reported that fact out to

25



whomever your client was. Typically, as best you can recollect it, what kind of followup followed from such a report?

5 A. Let me try to remember. Well, certainly the most recent example is the case of the four weightlifters where a certain number of abnormalities were, as you well know, detected. There was an immediate followup to that, with the results that you know.

10 I do remember also a case of a weightlifter, four years ago at least, who had an epitestosterone ratio of about 5.6 that was reported and was judged accordingly at that time. We tested this athlete maybe a week afterwards, and the ratio was determined again in this second sample and found to be less than 2. We are all  
15 talking about, of course, reports to the SMCC here. I'm sorry, sir, but I don't remember the others.

Q. All right. Then going back to some questions that Mr. Bourque asked of you, you indicated that your article that you identified in your C.V.  
20 concerning, among other things, a recommendation and a conclusion for out-of-competition testing in about 1975 --

THE COMMISSIONER: '74, I think he said.

MR. ARMSTRONG: He originally said '74, but when he checked the C.V., I think the article was  
25 published in '75. It may have been written in '74, I



don't know.

THE WITNESS: It was written in '74 and published in '75.

5

MR. ARMSTRONG:

Q. In any event, apart from the publication of that article, over the course of the last 13 years, from then until the time of Seoul, did you continue to take the position that out-of-competition testing was really the most efficient way of providing a deterrent for the people who might take anabolic steroids? Did you continue to put that view forward?

10

15

A. Yes, and in many forums. Probably a few times in our meetings with the IOC Medical Commission, as well as in private conversations with people involved in high places in sports. Certainly also in my capacity as an ex officio member of the Anti-Doping Committee of the Sports Medicine Council of Canada. That would be about it, I guess.

20

Q. Taking first the IOC Medical Commission, how were your views received there?

25

A. They were not only my views. Consensus rapidly developed into this necessity, but of course the implementation of such a concept, as I told you this morning, is rather difficult. It has a lot of legal





implications and other types of implications, one of which is quite important in the sense that the IOC, for example, has authority only on the Olympic Games. The rest of the time, it is international federations that do have the proper authority to test their athletes; but slowly, again, the consensus, especially the last two years, I must say, developed quite rapidly worldwide. I think that you heard about that from Mr. Makosky, so I don't have to repeat; but at the present time, when we were talking together, there is a different consensus in the world of sport that this is apparently the only way, out-of-competition testing that is, the only way to at least control the problem.

Q. When you say the consensus rapidly developed, it really only rapidly developed in the last couple of years; is that not so?

A. Yes, that's right. You know as well as I do that it's difficult to get consensus on such a question on an international basis; but certainly since 1987, we have heard the declaration, I believe by the European Sport Conference, which groups people from both the West and the East.

THE COMMISSIONER: Well, they didn't implement it then either. It has only recently been implemented.



THE WITNESS: It has been implemented by the International Weightlifting Federation about two or three years ago.

THE COMMISSIONER: Yes, we have heard about that.

THE WITNESS: The IAAF also I think is in the process of developing such a program.

THE COMMISSIONER: Yes, but there is still the process.

THE WITNESS: It takes a long time to develop such things and to develop consensus about them.

MR. ARMSTRONG: Indeed, if you look at the implementation, it's really only been post-Seoul that there has been any kind of a serious start on the implementation of out-of-competition testing.

THE COMMISSIONER: Except for the weightlifters.

MR. ARMSTRONG:

Q. Well, leaving aside the weightlifters and their Lotto 6/49 operation, or whatever it was. But if you look in the United States, they are just starting out-of-competition testing, certainly in track and field?

A. Yes.

Q. And Canada in track and field began



out-of-competition testing last November at the rate of what, three or four a month?

A. I don't know if your figure is correct or not. I cannot say.

5 Q. And Britain, although it had a program of some kind, really only started getting it off the ground, and it's only just getting off the ground at the present time, but we really got it off the ground in any considered way in November of '88.

10

15

20

25



A. Yes, that's a few months ago, yes, that's right.

Q. Yes. Now, from '74 until the Seoul Olympics in '88, were you a voice crying in the wilderness? I mean where was everybody when all the time and effort and money was being spent on in-competition testing or at-competition testing? Why were people not saying let's get on it so far as anabolic steroids are concerned and start testing out of competition?

A. First of all, I don't think I was a voice crying in the -- alone. There were other people also talking about it.

I must say, however, that in this country we did not have a drug testing program in athletes between 1974 and the beginning of 1984. My own involvement was at the Montreal Olympic Games, of course. There was a slight interruption of about a year and a half afterwards where we began working again in anticipation for the Lake Placid Games in 1980. I was not a member of the IOC Medical Commission at the time. So, my influence, if you wish, was rather limited, to say the least.

In the eighties, this concept began to develop. It is a difficult one to apply on the international scene. There was, I wouldn't say conflict of jurisdiction, but certainly people not wishing to





submit to the -- or organizations not wishing to submit to the authority of other organizations. But all this now is being well, apparently, well worked out.

5 The IOC at the Ottawa conference last year was for all intents and purposes voted by plebiscite to organize an international doping control system.

So, this conference was instrumental in accelerating that process and to catalyze it.

10 Other situations contributed to that as well. You mentioned the Seoul incident. That was, of course, a major event which catalyzed also the thinking of people, the conceptual framework of out-of-competition testing. And I think that now, it is my personal perception, that most everybody is ready for it. And  
15 ready to implement it on a world-wise basis.

Q. All right. Well, I understand exactly what you say, and much of what you say makes sense, but what I was directing my mind to was that you have been involved, for example, since 1973 with your involvement of  
20 the Montreal Games. And you went on from there to be involved in Lake Placid in 1980. '77 to '80 you were a member of the Scientific Group, Medical Commission of International Olympic Committee, Lausanne. And then from 1980 until the present time you are a member of the  
25 subcommittee on doping control and sport biochemistry.



So, you must have been associating with many of the people who are at the forefront of this issue. And what it appears at least historically is that all of the attention, so far as doping control is concerned, was focussed on a system that you predicted in 1974 would not do the job so far as anabolic steroids is concerned.

And since isn't it a fact that it really took Ben Johnson and the Seoul Olympics to get everybody alive to the fact that what you really needed was an out-of-competition testing program because Ben Johnson turns out to have been a fluke, probably.

A. When I wrote this article in 1974 --

THE COMMISSIONER: Of course, he was tested after competition.

MR. ARMSTRONG: Seventeen times or something in the last --

THE COMMISSIONER: No, no, but he was tested -- he was disqualified at Seoul after competing.

MR. ARMSTRONG: Yes.

THE COMMISSIONER: So, that for some who are perhaps not knowledgeable, they think that was doing the job. The more important thing is the evidence of people who have been on drugs all these years who were not tested positive, including Mr. Johnson, over a period of his career as well.



THE WITNESS: Let me answer a few things to that. The first thing is that when I wrote this article back in '74, it was as I indicated this morning, a review article, at the end of which I expressed the opinion that a better system might be conceived by testing not only at competition, but out of competition as well, because it was well-known already at that time that steroids were most useful in training although some people also hold the opinion that it can be useful up to an event. That's my first point.

The second point is that, and I will have to repeat myself, is that the realization was slow to come that an international consensus was difficult to build.

And you are perfectly right in saying that the Ben Johnson incident catalyzed events, but they were -- there had been a lot of thinking, a lot of declarations, a lot of resolutions and so forth done before that time. But it is quite correct that the Seoul incident --

THE COMMISSIONER: Well, in all fairness, I think immediately after Seoul what was being put forth was how effective your detection system was because here you have got the world's fastest man detected. And it wasn't until the realization that athletes had been on these drugs for many years, had been tested time and time again,



including Mr. Johnson while he admitted he was on steroids, that it became apparent that your detecting system wasn't very good.

THE WITNESS: I don't think that the  
5 detection system was not very good. I think that --

THE COMMISSIONER: I think, with respect,  
if you read the reports of that day, I think, and perhaps  
with some reason, that you and your colleagues were  
claiming great kudos for having made this detection and  
10 giving everybody, including myself, the impression at that  
time that that was effective. I knew nothing about  
anabolic steroids being in general use, nor did the  
public. As far as the public were aware, the competition  
testing was effective.

15 THE WITNESS: I am sorry, Mr. Commissioner,  
but I missed the first part of your statement.

THE COMMISSIONER: Well, it wasn't  
generally -- were you aware, and I gather you were then  
back in '74, that there was a widespread use of anabolic  
20 steroids amongst athletes and they were able to avoid  
detection?

THE WITNESS: We were not. We did not know  
at the time, we still don't know how widespread the use of  
anabolic steroids is.

25 THE COMMISSIONER: If you don't know, you





are one of the few then.

THE WITNESS: Well, it all depends I suppose on how you define widespread, but we don't have an idea because there no systematic study that has been performed  
5 on this. And you know as well as I do that a conspiracy of silence is surrounding all of this.

So, we believe that some evidence, anecdotal and otherwise, that it is widespread in some sports.

THE COMMISSIONER: You are not reading the reports that I am reading, because I think it is quite  
10 clear and acknowledged now that there is a very great widespread use of anabolic steroids.

THE WITNESS: That's what I said, there is widespread abuse in some sports, but I cannot give you any  
15 percentage.

THE COMMISSIONER: Well, then that would be -- if you pursue that line, then there -- you wouldn't go into random testing. You would carry on as you have for the last many, many years. Unless there is a real  
20 threat out there, there is broad use, you are not going to go into random testing. It is very expensive?

THE WITNESS: It is expensive, but I think if you have got -- let's assume for the sake of discussion that the figure is 20 percent of abusers, that  
25 is a significant proportion that justifies the



establishment of an out-of-competition system of testing.

THE COMMISSIONER: Well, it depends where the 20 percent are. If they are all congregated at the Olympics, that's a high percentage.

5 THE WITNESS: Yes, that's right, yes. Again I go back to the deficiencies -- to what widespread is really. And --

THE COMMISSIONER: No, but you are testing for international competition, basically.

10 THE WITNESS: At what level, sir? You mean at the IOC, at the --

THE COMMISSIONER: The IOC.

THE WITNESS: -- Olympic Games or the testing that we do in Canada.

15 THE COMMISSIONER: Don't you test for international competition? The NCAA is domestic only?

THE WITNESS: That is correct, and we test in Canada --

20 THE COMMISSIONER: You do both, that's right.

THE WITNESS: Yes. Most I would believe, I don't have the statistics in front of me, but I would believe that most of the events for which we tested in Canada are domestic events.

25 THE COMMISSIONER: All right, go ahead, Mr.



Armstrong.

MR. ARMSTRONG:

5 Q. Well, I won't -- well, that's true, the  
focus of my questions and the Commissioner's questions the  
last few minutes have clearly been directed at the issue  
at the international level where much of your professional  
and academic or professional career has been directed  
since 1973 when you were director of doping control for  
10 the Montreal Games.

I mean that's where the action is, if I can  
put it that way, as far as doping control is concerned.  
Is that not so?

15 A. I was one of the several people  
involved. And it was -- I was never in a position of  
making a decision or participating in making a political  
decision. That belongs to the -- to the members and  
councils of the international federations. I mean it is a  
long process. There are many, many, many people involved.  
20 And sometimes it takes a little time to convince laymen  
that a certain type of invention is necessary.

THE COMMISSIONER: Well, nobody can do it  
alone, there is to doubt about that.

25 THE WITNESS: That's right. I mean it is  
quite clear that this is a huge undertaking that took --



that took some time in order to develop a consensus. And there is a lot of sport officials who are running the game and the show, who were the ones that were supposed to take this decision, and who are now, as I told you before, taking it.

MR. ARMSTRONG:

Q. Well, just let me pose this suggestion. First of all, don't misinterpret the thrust of my questions, they are not being directed at you personally to be critical of you.

What seems to me as the people who associate with you and are in the same situation as you and are able to look at the big picture, must have come to some of the same conclusions that you did.

And the thrust of my question was what was going on in the IOC Medical Commission since 1980? What was going on in the IAAF since 1975 when the IAAF first banned anabolic steroids?

Why did they not come to the realization sooner than they did that out-of-competition testing was the way to go?

And, quite frankly, the kind of testing that you have been doing is not all that effective and maybe the expenditure of huge sums of money that at least from





the point of view of hindsight are perhaps not justified.

A. First of all, I wouldn't say that the system has been ineffective. I think it has been partly effective. The system has certainly abolished for all  
5 intents and purposes the use of short-term doping, if you wish, which the drug taking -- which is direct relation with competitions. It has served as a useful deterrent to prevent athletes from taking steroids at least up until the Olympics.

10 Q. Twenty-eight days before competition?

A. Well, no one really knows that.

Also --

Q. Let me just stop you there. We certainly have got lots of evidence of that here from  
15 people that take steroids that they operate on a clearance time anywhere from 14 to 28 days. Those that are a bit cautious will operate on 28 days.

I mean we have sworn evidence from witness after witness who have stood, sat exactly where you are  
20 sitting and said, yes, I took steroids, and, yes, I have been tested, and, yes, I have been tested many times, and I beat the test because I knew or believed the clearance time to be 28 days, and I knew that clearance times to be 28 days because Dr. Astaphan told me that or somebody else  
25 told me.



So, I don't know how you can say that it is effective in the short term. All it is effective in the short term of doing is maybe scaring a few people and the rest who are inclined to take steroids operate on a clearance time principle.

A. It might well be. We also -- the converse of what you were saying is we were also able to identify people as positive who had taken their last dose of steroids 10 months ago or before the test. So, we have to make this distinction as well.

As far as your previous question, I was not involved in any capacity with the IAAF at all up until -- none whatsoever. So, I don't know what was going on at the IAAF except for reading occasionally reports that were sent to me via several sources.

As far as the IOC Medical Commission was concerned, it escapes me right now, but I am quite concerned that during the early eighties that we did discuss this problem, but, again I will stress that the IOC has authority on the Games themselves, not before, not after. The consensus --

THE COMMISSIONER: That would be just a matter of a few weeks every four years.

THE WITNESS: That is correct. A consensus had to be build with the other international



bodies involved in order to come to a system which would be workable and which would involve again random unannounced or short-notice testing.

5 You know it is not a perfect world. We have done so far the best we could do. Now, we are trying to do things a little better.

MR. ARMSTRONG: Thank you, Dr. Dugal, those are all my questions.

10 THE COMMISSIONER: Thank you very much, Professor Dugal.

THE WITNESS: You are welcome, sir.

THE COMMISSIONER: Thanks very much.

15 MR. ARMSTRONG: Then, Mr. Commissioner, as I indicated yesterday, our next witness is Professor Donike, who has been waiting patiently since yesterday morning for us to finish. And he is ready to testify.

MANFRED DONIKE: Sworn

--- EXAMINATION BY MR. ARMSTRONG:

20 THE COMMISSIONER: Thank you.

MR. ARMSTRONG:

Q. Yes, Professor Donike, I am going to review with you for a few minutes your curriculum vitae.

25 And, Mr. Commissioner, we have filed a copy



with the Registrar and I believe there is a copy in front of you. And I would ask that it be marked as the next exhibit.

THE REGISTRAR: 216.

5

MR. ARMSTRONG: Thank you.

--- EXHIBIT NO. 216: Curriculum Vitae of Manfred Donike

MR. ARMSTRONG:

10

Q. Professor Donike, I note that you studied chemistry at the University of Cologne, and eventually began an academic career in chemistry where at the University of Sports for Cologne you are a professor and head of the department of biochemistry?

15

A. Yes, this is correct.

Q. And I think it would be interesting for the Commissioner and others if you were just to take a moment and describe what the university --

20

THE COMMISSIONER: I am sorry, it says University of Sports Cologne, what does that mean?

MR. ARMSTRONG: I was just going to ask him what the University of Sports and Cologne is.

25

MR. ARMSTRONG:





Q. I take it is a separate university from the University of Cologne itself?

A. Yes. University of Sports in Cologne is separate from the university. We have in principle  
5 three departments which are dealing with problems, medical, anatomic, and related questions, pedagogic and the sports science.

The number of students is estimated to be at this moment about 6,600. There will be about 7,000 when  
10 the fall classes recollect. Most of these students will get diploma. And some of them will become teachers. They will get position at the elementary and secondary schools. Some of them will go into sports as trainers. Some of them also will go in to special education branch, it is  
15 rehabilitation. They will work at clinics where are disabled.

Q. All right. And what is the period of time generally that a student would spend to obtain a certificate or a degree at the University of Sports in  
20 Cologne?

A. The curriculum vitae foresees eight semesters. This means four years, but in practice this will be a little bit more due to the fact that they have prepare a diplom thesis in most of the disciplines. These  
25 are experimental -- thesis.



Q. And then --

THE COMMISSIONER: It is a four-year course? Is it basically a four-year course?

5 THE WITNESS: It is a four-year course which will --

THE COMMISSIONER: Take a little longer to get your degree?

THE WITNESS: This will be concluded by diplom thesis, as we call it. And also it will be  
10 concluded by examinations in up to 20 disciplines.

THE COMMISSIONER: All right.

MR. ARMSTRONG:

Q. I take it it is a little bit like our  
15 graduate courses in North American universities where if you take a Masters degree, the course requirements may be one or two years, but you have to do a thesis, and students often take longer to do the thesis and so that accounts for the extra period of years?

20 A. This is comparable, yes.

Q. Yes, all right. Before I go in to your association with the issue of drugs in sport, it is worthy to note from your CV that indeed you have a sporting background. And from 1950 to 1954, you were an amateur  
25 cyclist?



A. Yes.

Q. At what level did you compete?

A. It were, I would say, at the highest national level and at the lower international level.

5 Q. Then from 1954 to 1962, you were a professional cyclist?

A. I was professional cyclist, yes.

Q. What level were you at as a professional?

10 A. I would say medium at the national level and even lower at the international level, to be modest.

THE COMMISSIONER: We are not used to modesty around here.

15 MR. ARMSTRONG:

Q. It looks like from your CV, you got in to this whole interesting area of drugs in sport or doping control in about 1970; is that correct?

20 A. Now, this is correct. In 1972 the Olympic Games were to be organized in Munich. And after the experiences of the dope control, maybe come back later to this, in Mexico and Grenoble, the organizing committee of Munich had to prepare the whole scheme. And I was  
25 asked to participate, especially my capacity as chemist.



You should know that at that time the analytical methods to detect dope agents were limited when I regard the comprehensivity of the methods and the sensitivity.

5                   Q.    We know already from evidence that we have heard before yesterday and also, of course, from evidence during the course of Professor Dugal's testimony that you are head of the IOC accredited lab in Cologne. Back in 1970, was that the genesis or the beginning of the  
10                   establishment of your laboratory for the analysis of drugs used in sport?

                  A.    Yes, this is correct. In preparing the Olympic Games, the Federal Government of Germany, which is responsible for top level sports, concluded that the  
15                   experience collected in preparing the Games and during the Games should be made available to the German sports federations. And that at that time, as early as June, 1970, we started to establish laboratory not only for the Olympic Games, but able to be run also after the Games.

20                   Q.    Did you become the director or head of doping control for the 1972 Munich Games?

                  A.    In principle I was responsible first for the analysis, but due to some experiences I had in evaluating, today we would say dope control procedures, in  
25                   connection with international cycling federation, I was





asked to prepare a draft for what now is known as dope control procedure.

At that time, we started to define doping as it is defined today banning of classes of compounds. And also we tried to establish a system as you have seen in the brochure and how it is run today, sampling, dividing the sample in two samples, and giving the athlete during procedure the right to be heard, to present his case, and to observe by himself or by an expert of his choice the B analysis. This all was developed in preparing the Olympic Games of Munich.

Q. All right. And then as you mentioned, as indicated in your CV, since that same period of time, since 1970, you have been involved in drug or doping analysis for various German Sport Federations?

A. Yes, this is correct.

Q. Does that exist up to the present time? Your laboratory is still involved in that work in West Germany?

A. Yes, since 1974, I have a contract with the Federal Institute of Sports Science, which is administrator in body of our Minister of Internal Affairs. And part of this contract is to analyze some systems for our national amateur sports federation.

Q. In 1974, as well, you were directly



involved in the preparation and operation of the doping control program for the world football championships held in Germany that year?

A. Yes.

5 Q. And in 1976, you were a consultant in the doping control or doping analysis area for the winter games in Innsbruck, Austria?

A. Yes, correct.

10 Q. Then in 1979-1980, your CV indicates that you were involved in the preparation of the doping control laboratory in Moscow and responsible for the accreditation of the Moscow lab on behalf of the IOC Medical Commission?

A. Yes, that is correct.

15 Q. Indeed, you were the person who initially set up and it was you who was in charge of the doping control lab for the 1980 Olympics in Moscow; is that correct?

20 THE COMMISSIONER: West Germany also did not participate, is that right, in the 1980 Olympics?

THE WITNESS: Okay. If you want I can explain the situation of Moscow a little bit in detail.

25 MR. ARMSTRONG:



Q. All right.

A. You should know that the German Federation of Sports has a contract of cooperation with the USSR Sport Committee. There are annual meetings. And on this meetings, questions of interest for both sides are discussed.

And actually, the USSR had interest in profiting from my experience or from the Cologne experience at the Olympic Games in Munich and the experience collected afterwards.

So, there was a relatively close cooperation between Institute of Biochemistry of Cologne and the Institute of Physical Culture in Leningrad, because at that time it was the institute Professor Rogozkin, as head of this laboratory, who was entrusted to prepare the dope control for the Moscow Olympic Games.

And nearly parallel, we had developed in the Medical Commission of IAAF, maybe this will rise a little bit the rating of the IAAF in your eyes, it was the Medical Commission of IAAF preparing the first paper requirements for standardization of Olympic methods and accreditation of dope control laboratories.

And this was in principle known to the Medical Commission of IOC, especially Prince Alexander de Merode.



And in preparing the Moscow Olympic Games, I was asked also to initiate there formal accreditation and accreditation, I must say, which still today exists there. They had to analyzed 10 samples blind in the presence of a representative, of a delegate, of the Medical Commission of IOC.

MR. ARMSTRONG:

Q. All right. And in addition to being involved in and responsible for the accreditation, were you also involved in the supervising or setting up of the lab to make sure that everything was in order for the testing at the Moscow Olympics?





A. No, not directly, but I gave naturally in the time period of preparation a lot of advise, a lot of substantial help so that they could set up their instruments, so that they could work with these instruments, and then finally, they were able to pass the accreditation test.

Q. All right. Under the contract that you referred to between the German sporting organization and the Soviet Union, did you, although the West German team didn't participant in Moscow, did you actually go to Moscow at the time of the games?

A. Well, if you remember the time sequence of this decision, the boycott of the Moscow Olympic Games, this was done, as far as I remember, following the December 1979 invasion of Afghanistan.

Q. Yes.

A. So most of the preparation had been done, and as far as I remember myself, the decision that the German team would not participant was made in May or June.

Q. I understand.

A. It was relatively short before the games.

Q. That was obviously the case in many countries including Canada, I believe.



A. So this was not an influence in the preparation of the games, at that time, was not influenced by this boycott.

Q. All right. Moving along, in 1982 you  
5 were a consultant in doping analysis for the world championships in football in Madrid?

A. Yes, correct.

Q. In 1983, you were head of the doping control laboratory at the Pan-American Games in Caracas,  
10 Venezuela?

A. Yes.

Q. Also in 1983, the world championships in athletics, or as we call them, track and field, were held in Helsinki. What involvement, if any, did you have  
15 in regard to the doping control laboratory in Helsinki?

A. Maybe I should mention that the accreditation process of the IOC Medical Commission was effective in 1983, and the Helsinki laboratory applied for accreditation. So I got involved, and this was a normal  
20 procedure; sending samples; asking for the documentation of the results obtained. I do not recall when the formal accreditation was made. As far as I remember it was March or April. It was spring '83.

During the games, due to my commitment in  
25 Caracas I could stay only a few days there. I went to



Helsinki only the first day before the opening ceremony.  
I checked the performance of the laboratory, the urine  
samples, and the calibration mixtures I brought in from  
Cologne and found that the laboratory was in perfect  
5 shape.

The first two days during the  
world championships, I stayed there. Then I went back to  
Cologne and moved further on to Caracas. My part in the  
laboratory was taken over by another gentleman from the  
10 IAAF Medical Commission. It was Dr. Hupnam (phon), and so  
I am convinced that the analysis had been performed there  
at a high profession level, with the highest sensitivity  
possible at that time.

There have been made comparisons between the  
15 performance of the Helsinki lab and the laboratory in  
Caracas where we worked under a little bit more  
unfavorable conditions; but I do not think that such a  
comparison is justified, justified by no means, because  
the population participating in Caracas was quite  
20 different from the population participating in Helsinki.  
In Helsinki, there was a close society of IAAF. In  
Caracas, there was a wide mixture of sports, as they  
participated in the Pan-American Games, and out of the 19  
positive cases which which had been sanctioned by the IAAF  
25 Medical Commission, the first ten were weightlifters. So



anybody who is comparing here the results of Helsinki and the results of Caracas is comparing apples and potatoes.

THE COMMISSIONER: Or oranges.

THE WITNESS: Okay, I accept this, if you like, oranges.

MR. ARMSTRONG:

Q. Of the remaining nine positives at the Pan-American Games in Caracas, do you remember generally what the distribution by sport was?

A. I have a copy of the report here. You can file it if you want.

Q. All right.

A. If you will allow, I will read it.

Q. Well, why don't you read it, and then we can get it photocopied later and filed.

THE COMMISSIONER: It is 1983, Caracas?

MR. ARMSTRONG: Yes.

THE WITNESS: No, I do not find it. I will check later.

MR. ARMSTRONG:

Q. Then in 1984, moving along with your background and experience in this field, you were involved in the doping control at the Olympic Games in Sarajevo and





Los Angeles as a member of the IOC Medical Commission?

A. Yes.

Q. In 1986, you were responsible for  
doping control during the Asian Games in Seoul as the head  
5 of the Seoul laboratory; is that correct?

A. Yes, that's correct, but I should add,  
as the head of a temporary, accredited laboratory.

Q. I see.

THE COMMISSIONER: I'm sorry, I lost it.  
10 Would you just put the mike a little bit closer or just  
pull it up?

THE WITNESS: Okay.

THE COMMISSIONER: I lost the last word.

THE WITNESS: I was in Seoul as the head of  
15 a temporary, accredited laboratory. We created the term  
of "temporary accreditation" within the Medical Commission  
of the IOC to go to places where not an IOC accredited  
laboratory exists, but where there is the need for  
relative high sample throughput, but also with the  
20 intention to create a laboratory which will be able to  
apply for accreditation in the near future.

MR. ARMSTRONG:

Q. The Asian Games in 1986 in Seoul, I  
25 assume that they are similar to the Pan-American Games in



terms that they are just a kind of geographical grouping of countries in the Asian belt, if I can put it that way?

A. Yes.

Q. All right.

5 A. It is ordered by the national Olympic committees of Asia.

Q. Finally, in 1988, of course we're going to hear a lot about this, but just to put it into this part of your evidence, you were involved again as a member of the IOC Medical Commission in both the Winter and  
10 Summer Olympic Games in 1988, that is the Winter Games in Calgary and the Summer Games in Seoul?

A. Yes, correct.

Q. All right. Looking at your other  
15 qualifications, memberships and so on, since 1975 you've been a member of the Medical Commission of the IAAF?

A. Yes.

Q. You are still a member today?

A. Yes, still on the Board.

20 Q. And since 1980, you have been a member of the IOC Medical Commission and indeed you hold the position of Secretary of the Subcommission on Doping and Biochemistry of Sport of the Medical Commission?

A. Yes.

25 Q. Since 1983, you have been a member of



the Medical Commission of UCI. I apologize, what does UCI --

A. It stands for Union Cyclistes Internationale, the International Cycling Federation.

5 Q. Since 1983, you've been a member of the expert group of the European Anti-Doping Charter of the Council of Europe?

A. I represent the federal government of Germany.

10 Q. Since 1987, you have been a member of the working group of the European Sports Conference, and the working group is called "Effective Anti-Doping Measures"?

A. Yes.

15 Q. All right. Then attached to your C.V. are many publications which will be on the record, but I won't take the time to review them at the present time, as interesting as they appear to be.

20 Then I want to take a moment with you, Professor Donike, to ask you some questions about the IOC Medical Commission. Before I get into the particular questions, it might be of some assistance to you and to the Commissioner if we were to file as an exhibit the current roster of the membership of that commission and  
25 the breakdown of the membership of the various



subcommissions. That's before you, Mr. Commissioner, and I would ask that that single page be marked as the next exhibit.

THE REGISTRAR: 217.

5 THE COMMISSIONER: What's 216?

THE REGISTRAR: 216 is the C.V.

THE COMMISSIONER: Oh, the C.V. Thank you.

10 --- EXHIBIT NO. 217: ONE-PAGE DOCUMENT ENTITLED "IOC  
MEDICAL COMMISSION".

MR. ARMSTRONG:

15 Q. All right, Professor Donike, when was the IOC Medical Commission established, and why was it established?

20 A. The Medical Commission of IOC was established in 1966. The reason to establish the Medical Commission was, first, the increasing use of doping agents, at that time, stimulants, anabolic steroids, only as in a very small amount; and the second, the upcoming games of Mexico City where the high altitude and the consequences, the health consequences for the athlete, was a matter of concern.

Q. Right.

25 A. The IOC Medical Commission, as it





existed at that time, performed on a small scale dope controls in Grenoble, the Olympic Winter Games, and at the Olympic Summer Games in 1968 in Mexico. The result was negative for Grenoble, and in Mexico City, one positive test was achieved, but it was alcohol in the modern pentathlon. This is not a drug of concern normally in the IOC, but only in some federations. Actually, alcohol is banned by the Modern Pentathlon Federation and by the International Fencing Federation, as well as the International Volleyball Federation for the referees.

Q. For the --

A. For the referees. They have to perform an alcohol test before the games. You see once more the authority of the federations. They decide what happens and when.

Q. There are some referees in some other sports I know where that rule might be helpful, but I might get sued, so I'll refrain from making any comment.

What over the years have been the general responsibilities of the IOC Medical Commission?

A. The IOC Medical Commission has had a lot of responsibility. The name may suggest that they take care of the health of the athletes. This is the large headline under which you can list all the



activities. It is maybe said for sport that the activities in the area of dope control will have the greatest media coverage, but it is an important area, and especially in the first two or three Olympic Games, the Medical Commission of the IOC spent a lot of time to  
5 implement competition tests, as they are performed still today. You must not think that this was self-understanding to introduce dope control at an event of the importance of the Olympic Games. It took a lot of effort. Most of the effort had been done by the local  
10 organizing committee, but the Medical Commission of the IOC hated to draft the guidelines to show where the organizing committee had to go. So this was the situation until 1980. Then the IOC Medical Commission was  
15 restructured, and you have now the structure here.

The Commission is composed of members of the IOC. Prince Alexandre de Merode is the Chairman. The Vice-Chairman is Dr. Eduardo Hay.

Q. Can I just top stop you there. Would  
20 you just tell us what country Dr. Hay comes from?

A. Dr. Hay is from Mexico.

Q. Yes.

A. Then there is the Secretary, but not a member of the IOC, I have to add, Dr. Albert Dirix.

25 Q. Dr. Dirix, I take it, is like Prince de



Merode, from Belgium?

A. Both are from Belgium. Then the other members, General Henry Adefope; Professor Rene Essomba; Dr. Kevin O'Flanagan; and Mrs. Mary Glen Haig.

5 Q. Can I just stop you there. General Henry Adefopa, what country is he from?

A. Please, may I ask my lawyer to help me? He's in the booklet? He's not in the booklet? I'd have to check it, I'm sorry.

10 Q. And Professor Essomba?

A. From the Ivory Coast, as far as I recall.

Q. And Kevin O'Flanagan?

A. May I suggest Irish?

15 Q. And Mary Alison Glen Haig has got to be from Scotland or Great Britain.

A. Great Britain.

Q. All right. Sorry, I interrupted you.

20 A. Then you will find, to go in the sequence of the list, the representatives of the next Olympic Games will be temporary members of these commissions. This is Dr. Patrick Schamasch from the Organizing Committee of Albertville, France, and Dr. Jose Cuervo is representative of the Organizing Committee of  
25 Barcelona.



Q. Just pausing there, I take it that because of the holding of the Winter Olympics in Calgary in 1988 that Canada must have had a representative on the IOC Medical Commission?

5 A. Yes, Dr. Bruce Chellis (phon) was a temporary member of our Commission for the time being starting before Sarajevo until the end of the Olympiad.

So then they go on. There are representatives of the International Summer Federation, open at this moment -- sorry. There is a representative of the International Summer Federation still to be named, and a representative of the International Winter Federation, Dr. Wolf-Dieter Montag from Germany.

10 Q. What international federation does he represent?

A. The International Winter Federation.

15 Q. I see, but does he come from a particular sport? Is he the president of some individual international federation?

20 A. Yes, he's the Chairman of the Medical Commission of the International Ice Hockey Federation.

Q. I see.

A. Then there is a representative of the Athletes Commission, Mr. Sebastian Coe.

25 Q. All right. Without reading all of the





names of the various subcommissions, why don't we just leave aside for the moment the Subcommittee on Doping and Biochemistry of Sport. Why don't you just take those other three subcommissions and just give us a brief description, if you will please, as to what their responsibilities are? It may well be that the name speaks for itself.

A. Let's start with the subcommission, "Biomechanics and Sports Physiology". This commission was founded to evaluate the basic science behind sports and to evaluate the biomechanics to improve training methods with the goal to avoid injuries. A lot of injuries are caused by false training or competition technique. This is the main issue this commission has to deal with, but also to deal with questions in connection with the physiology of sports.

The next commission, "Sports Medicine and Orthopaedics". It's more a traditional commission, but performs important tasks. For example, this commission was heavily engaged to evaluate methods to protect boxers, to investigate this sport to avoid injuries, also long-term injuries of this kind, and there were a lot of meetings with the International Boxing Federation.

In addition, this commission also will check the facilities at the towns of Olympic Games, facilities



to transport injured people. They may be athletes, they may be spectators, and also to take care of them in appropriate hospitals. The equipment should be available also for rehabilitation techniques.

5                   Then the Subcommittee on Co-ordination with the NOCs, this is a subcommittee which was built to improve the relation between the Medical Commission of IOC and the national Olympic committees. The Medical Commission of the IOC has initiated a lot of steps to  
10 improve the health care in sports. For example, the Medical Commission of the IOC has more or less forced or pressed international federations years ago to found medical commissions on their own to nominate a chairman who can be a partner with the Medical Commission of the  
15 IOC; and on the other hand, the Medical Commission has asked the national Olympic committee to nominate a doctor, a physician of liaison. So then the Medical Commission of IOC will distribute papers, whatever subject is treated in it, that in each national Olympic committee there is a  
20 partner who will receive the letter and also will understand the importance of what we are distributing.

THE COMMISSIONER: Mr. Armstrong, I suggest we take a short break. We will sit a little longer this afternoon.

25 --- Upon resuming.



THE COMMISSIONER: Mr. Armstrong.

MR. ARMSTRONG:

Q. Now let's, if we can, go to the  
5 Subcommission on Doping and Biochemistry of Sport,  
Professor Donike. Can you just give us an overview of  
what the responsibilities are of that subcommission?

A. The headline will explain it. The  
subcommission will deal with all questions where doping is  
10 concerned. This means that we will, if new classes of  
compounds shall be listed, new substances added to the  
list of examples, we will deal with detection techniques.  
We will deal with the sample-taking procedure; but  
naturally when we have come to an agreement, to a  
15 proposal, this will will be subjected to the full  
Commission. It's once more subjected to review, and then  
it will be implemented.

On the other hand, the biochemistry of  
sports, we learned yesterday in the lecture by Professor  
20 Dugal that a lot of biochemistry is involved. Dope  
analysis you cannot perform only in pushing the knob on an  
instrument. You must know the pharmacology and the  
metabolism of the dope agents in question. So these are  
also questions where our commission will deal.

25 Another question is also my personal



interest, the biochemistry of sport. This doesn't only mean doping, but also a lot of parameters are involved and maybe I come back to my own research interest. It is the regulation of a function of the body. A lot of them is  
5 done by hormones. It may be stress hormones, which on the other hand are chemically related to a group stimulants, the amphetamines and the ephedrines. So you see a close relationship between grouping our subjects and the biochemical reactions which we will find in anybody, but  
10 where the biochemical reactions in top athletes at the high performance level are of the utmost interest.

The Subcommittee on Doping and Biochemistry has also other tasks in between the games. Maybe we will come later to the tasks at the games, but in between the  
15 games one of our tasks is to accredit laboratories. This also means that we improve the analytical methods. Today I have learned a lot on cross-examinations that a lot of people are playing around with substances, stating that that the IOC accredited laboratories cannot detect them.  
20 I would like to come back to this subject after my slide presentation regarding the steroid profile and then making some conclusions out of these additional parameters. Once more I may add here, the steroid profile is not a matter at this moment of dope analysis, but is an additional  
25 parameter, a biochemical parameter which is measured at





the same time as we are testing for anabolic steroids excreted in the so-called "conjugated fraction". So the laboratories normally get more information out of a urine sample that will be reported, you know, where Dugal may have signed. We see a little bit more.

The implementation of the accreditation and the reaccreditation, this has a history of its own. If you want, I can explain this now.

Q. Yes.

A. Okay. Let's go back to 1975-76. As you may be aware, I received some reputation -- good or bad, it's up to your judgment -- after the Olympic Games in 1972 in Munich. Afterwards, there were some reports, not many, but some reports where athletes were claiming that due to a false, positive result, there were sanctions.

On the other hand, a lot of international federations complained that some laboratories at that time used for dope analysis didn't report any positive results. If there had been positives from a technical point of view, we would call these results false negatives. The ruling at that time related to Prince de Merode coming to a conclusion that it should be up to the Medical Commission of the IOC to set standards; but at that time, the Medical Commission of the IOC did not have the report



that we have today. So this took a lot of time, and it was much easier to go through the comparable, well-organized and structured international federation. By chance, it happened that Professor Beckett and myself are on this Commission and Dr. Hupman (phon) from GDR. It is the Medical Commission of the International Track and Field Association, the IAAF. At that time, the President was Andrean Paulen.

Q. I'm sorry, that name again? The president was --

A. Andrean Paulen, P-A-U-L-E-N.

At that time, we put together in two or three meetings what later became known requirements for harmonization of analytical methods and the requirements for the accreditation of laboratories.

Q. Can I just stop you there. Does this group of three that you are referring to, you, Haupman (phon) of the German Democratic Republic, are you at that point grouped together because you had each been a member of the IAAF Medical Commission?

A. The IAAF. I think it's fair to say that this project, accreditation and also reaccreditation, started at that level, at the level of an international federation. Then it takes always a long time to work out a paper and to implement such a proposal. It lasted until



1980. The Medical Commission of the IOC was restructured. I became a member of the new, convened Subcommittee on Doping and Biochemistry.

Q. What year was that organized?

A. Pardon?

Q. What year was the Subcommittee on Doping and Biochemistry organized? Was that 1980?

A. 1980 after the Olympic Games in Moscow, and this became official due to a decision of the President and the Executive Committee beginning 1981.

For me, it was logical to go with this paper to the IOC -- I do not say as a higher body than maybe IAAF will give me a bad mark, but to a more comprehensive body, because for me, as the head of the laboratory, it would have been meaningless to perform a reaccreditation for this federation and that federation and that federation. You can imagine if you invested two or three days or one accreditation procedure or reaccreditation procedure. We have about 30 Olympic federations. You would have to spend the whole year on accreditation samples. So to avoid this but also to move this to a higher, more competent level, I insisted that the Medical Commission of the IOC should take it over, and luckily it took it over.

The accreditation then was performed. Most



of the work was done in Cologne in my laboratory, and to  
spell this out, accreditation at that time meant that a  
laboratory in most cases, where in the near future a major  
event should be organized, asked for such an accreditation  
5 of a certain country, asked for accreditation because  
there was some concern in the issue of drugs and there was  
a relative strong leading body.

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A. The process was that I get into contact, ask what is your instrumentation, always depending on this paper we had put together. And asking are you able to perform the methods which are listed in this paper.

Then came the feedback. And the next step was an experimental science to make an experiment. What will you do? You send samples asking them to analyze so that they are able to demonstrate their competence. This is still the way we proceed today.

We have specified this two years ago in this paper Good Laboratory Practice. The accreditation at that level worked fairly well.

Q. All right. I am just going to stop you for a minute and go back again to 1980 to the origins of the accreditation process.

When the first laboratories were accredited, who were they?

A. The first laboratories were designated to be accredited by the Medical Commission at that time 1980, and these were the laboratories having performed dope analysis at Olympic Games.

Q. I see.

A. Munich, or in this case, it was Cologne, because I moved to Munich. It was Montreal;



Dugal. And it was Rogozkin in Moscow. He was at that time head of the laboratory. Then it was maybe a decision out of political balance, but also accepting the competence, the laboratory in German Democratic Republic, Kreicha. And the pioneer of the dope analysis and dope control, Professor Beckett's laboratory in Chelsea.

Q. I see.

A. So, this were the first five. We acted as appeal laboratories and due to work we invested, Cologne became more and more a reference laboratory for the other laboratories world wide.

THE COMMISSIONER: Well, looking at the present compliment, there is Dr. Beckett, and yourself, Professor Catlin, Dugal. Who is Professor Clausnitzer? Where is he from?

THE WITNESS: He is the head of the IOC accredited laboratory in Kreicha, German Democratic Republic.

THE COMMISSIONER: Right. Dr. Semenov from Russia?

THE WITNESS: Yes, Moscow.

THE COMMISSIONER: All right. Thank you.

THE WITNESS: We implemented the first re-accreditation process 1985. As far as I recall we were at that time 13 accredited laboratories. You know, you



see the increase of the number of laboratories. And once more in Genoa in 1987. At that time were 22 IOC accredited laboratories.

5 Due to some lawsuits, I hope this expression is correct, in the United States and also in other countries, it was Dr. Dugal who initiated as early as '85 the refinement of the re-accreditation paper. It took a long time.

10 At first I must -- I am convinced as very frankly I was not in favour to do so because it was my opinion, and it is still my opinion, that accreditation, re-accreditation, analytical methods, doping control procedures in principle are a method of the self-administration of the international sport  
15 organizations.

But due to these lawsuits, I became more and more convinced that this would be necessary. And we catch two flies, you know, at the same time, to increase the requirements with the goal to increase the competence of  
20 the laboratories. And on the other hand, to make the whole process, which is going on when we analyze, when we analyze A sample, B sample report, to document this in such a way that it can be used as evidence in the lawsuit.

25 This was the beginning, and this was the idea behind redrafting the requirements. It took some



time to put it together. It took some time to reach a final version.

Maybe I should mention at this stage that one of the earlier drafts was sent to all at that time IOC accredited laboratories for comments of the heads of these laboratories.

So, this is not, I would say, a creation only of two people. It is more or less, there is the input in from the whole subcommission of the whole IOC Medical Commission, and also heads of the laboratories which are concerned, which are partners in this re-accreditation process.

MR. ARMSTRONG:

Q. Before asking you some questions about the re-accreditation process, I wanted to ask you some questions about initial accreditation. And you were good enough to provide a couple of days ago when we met a document entitled International Olympic Committee Medical Commission, Requirements for Accreditation and Good Laboratory Practices.

And as I understand it, that document sets out what is required if a laboratory today wanted to make an application to the IOC Medical Commission to be an accredited laboratory; is that correct?





A. Yes, it is correct.

MR. ARMSTRONG: Mr. Commissioner, you have that among the papers as does the Registrar. Could we have that marked as the next exhibit, the document  
5 entitled Requirements for Accreditation and Good Laboratory Practices.

THE COMMISSIONER: 218.

THE REGISTRAR: 218.

10 --- EXHIBIT NO. 218: Document entitled Requirements for Accreditation and Good Laboratory Practices

MR. ARMSTRONG:

15 Q. All right. Now, without asking you to go through this document in detail, could you just take a minute and tell the Commissioner what is involved if a laboratory in let's say Toronto decided that today it wanted to make an application to become an IOC accredited  
20 lab. What would the prerequisites be in order for it to make the application? And then what must it do in terms of satisfying the application requirements?

A. Maybe it is not in the correct chronological order. Normally laboratories proceed, but  
25 one mandatory requirement is that laboratory provides --



Q. I am sorry, I am going to interrupt you. If I have put the wrong question then --

A. No, it is okay.

Q. -- I am happy to do it in a way that gets your evidence out appropriately.

A. No, okay. This was correct, I wanted to say, and I want to answer to your question.

Q. All right.

A. Because when I am doing here following the list, this must not be exactly the chronological order.

THE COMMISSIONER: I understand.

THE WITNESS: Yes, how to proceed.

MR. ARMSTRONG: I see.

THE COMMISSIONER: Yes.

MR. ARMSTRONG: I understand.

THE WITNESS: For example, we prescribe in point two, essential equipment. And it is, it happens quite often, that I get the phone call or I receive a letter where a laboratory asks what are the requirements regarding the equipment.

THE COMMISSIONER: Right.

THE WITNESS: What are the requirements requiring analytical procedure. Then they are told this, this is no problem, you know, this is no secret. Then



also they will get the advice, "please, before you go further, provide a letter of support of national authority, it maybe national Olympic committee". It may be the sports governing body which will be recognized by the IOC.

The reason to ask this is that we want to avoid to get the information, knowledge, and also the material which is available to laboratories who are dedicating their work not to fight doping, but to support dopers. For example, in determining excretion -- sorry, in determining you said it is here the expression the clearance time. This is what we clearly do not want.

MR. ARMSTRONG:

Q. Yes.

A. So, we want an assurance of a national authority familiar with the sports situation in that country that this laboratory has the necessary credibility, especially the credibility of the sports organization.

Q. So, for example a Canadian laboratory from Toronto that might make an application I suppose would perhaps attempt to get a letter from Sport Canada, is that what you are saying?

A. Yes, I think this would be correct and



would be adequate to the situation here.

Then essential analytical equipment. The sum of analytical procedures I refer to the lecture of Professor Dugal. This must be given -- it should be clear  
5 that definite identification of a doping substance requires analysis by mass spectrometry.

The accreditation of analytical method is described. And these are several paragraphs. I will not go through them.

10 The principle is that a laboratory in this accreditation process under observation will be able to find the correct results on ten samples.

THE COMMISSIONER: You sent test samples, do you?

15 THE WITNESS: Yes, ten samples -- test samples.

THE COMMISSIONER: All right.

THE WITNESS: The accreditation includes pre-accreditation status where test samples will be sent  
20 and where we ask for documentation for evaluation of these results, critical evaluation, combined with advice how to improve the methods if necessary, and at least three sets of this sample should be analyzed successfully before an accreditation will be started.

25





MR. ARMSTRONG:

Q. All right.

A. Then re-accreditation procedure. The idea behind this that once a laboratory is accredited, often the competence will slow down. This may be due to a lot of factors. A laboratory asking for accreditation in connection with Olympic Games will have enough support, but after the Olympic Games, the support is cut down, often from a high level, let's say 100 percent, to 10 percent or less. The consequence will be a smaller number of staff, lesser competent staff, maybe not enough budget to maintain the --

THE COMMISSIONER: High standard.

THE WITNESS: -- the high standard of performance of the instruments, the maintenance, to pay for the maintenance.

So, this is what we want to avoid once performing accreditation. It is relative easy, but to maintain the standard, and also to increase the standard in the sense that more and more screening procedures will be implemented, this means a lot of efforts, both intellectual efforts of the people working the laboratory and also efforts meaning budget from the supporting authorities.

To give you an example, 1972 we screened



Olympic Games in Munich only for stimulants and narcotics and for certain sports for sedatives it was morapentalon (phon).

5 So, we could do this with relative small repertoire in screening procedures what you call now screening procedure one, screening procedure two for heavy volatile compounds or compounds excreted as conjugated in the urine. And some special test for extraction for example. That's all. But Professor Dugal pointed out  
10 yesterday, he has developed up to eight screening procedures. And this is an increase in the the complexity of dope analysis.

Each group which has been added in the past has different chemical and biochemical properties. And  
15 the laboratories must take into consideration these properties. I may there may be I refer to the review I handed to you and maybe for further illustration I would propose you put it as an exhibit also.

20 Q. That's the document that you wrote entitled the Role of the IOC Accredited Laboratory in Doping Control that --

A. No.

Q. -- you gave in Seoul --

25 A. I think this is Official Procedure of the International Athletic Foundation. I have a copy for



you if you would take this.

MR. ARMSTRONG: Thank you. Right. Then it might be appropriate, Mr. Commissioner, to file this document as the next exhibit.

5 THE COMMISSIONER: Do I have that amongst my paper?

MR. ARMSTRONG: No, you don't.

THE REGISTRAR: It will be 219, Mr. Commissioner.

10 --- EXHIBIT NO. 219: Document entitled Official Procedure of International Athletic Foundation.

15 MR. ARMSTRONG:  
Q. Thank you. Now, do you have a copy yourself left?

A. I don't need it, I have it in my mind if necessary. I wrote it.

20 Q. Okay.  
A. The re-accreditation procedure, I pointed out it is meant to obtain the standard. We have included in this I would say continuous re-accreditation process so-called proficiency testing programs where in between  
25 the re-accreditation which is now performed each year in



January, in May, and September will be sent in addition for some, in addition set of four samples to the laboratories in the first stages, more out of education purposes, to make all the laboratories familiar with certain analytical procedures.

For example, we have included in the last proficiency test a very comprehensive set of sample to first to evaluate the possibilities to the test -- to determine the T-E ratio. And I will hopefully come back and give you a small lecture on analytical chemistry, the error, and the definition of error and what means the range.

Q. It sounds like you don't think I understand the definition of error in the testosterone-epitestosterone ratio?

A. With all my respect, this morning I had the impression.

THE COMMISSIONER: We are waiting for you, Dr. Donike.

MR. ARMSTRONG: You can fool some of the people some of the time, I guess.

THE WITNESS: But, okay, this proficiency test we have have implemented it only once. We are performing the next proficiency test in September. And we will revise the outcome of these tests we have implemented





this year.

MR. ARMSTRONG:

Q. And I take it that as was indicated by  
5 Professor Dugal yesterday in the re-accreditation process  
that in the accreditation process as well that when the  
lab analyzes the samples that are sent to it and the  
analyses are reviewed by the IOC Medical Commission  
subcommission, that it is a prerequisite to get them 100  
10 percent correct?

A. This is naturally our aim, first of all  
correct result. But the second goal we have is as was  
pointed out by Professor Dugal. And as you can see out of  
this -- sorry, on this GIP that the documentation is  
15 presented in such a way that first the subcommission, but  
second also an external reviewer will be able to follow  
the sequence of steps having led to the confirmation or  
better said identification of the dope agent.

THE COMMISSIONER: In other words, it is  
20 not just getting the right answer, you have got to explain  
how you got there in detail?

THE WITNESS: Yes, because the other way  
only to get an answer, it would be easy. And we would  
open the door to guess work, as some people say, or to  
25 black box chemistry, as I name it.



Once more, the analytical procedures which must be performed for each screening procedure comprise a lot of steps which by itself are demanding. And this is also reason why you cannot go with a urine sample, as the Commissioner has experienced, to any laboratory and let  
5 them analyze for Stanozolol. They will find zero.

So, this should be made clear that the analytical procedures which the IOC Medical Commission prescribes mandatory to be fulfilled. We also additional  
10 test, but some of these procedures are mandatory, that these procedures has been elaborated over the years, and that they have after sound scientific basis.

THE COMMISSIONER: All right.

15 MR. ARMSTRONG:

Q. Now, in the example that I gave you of accreditation, that is a laboratory today in Toronto making an application for accreditation, they have to provide their letter of recommendation and so on to show  
20 that they have appropriate staff as is indicated by Exhibit 218.

Then they have to pass the analysis test. Who is it that is grading or as the Commissioner indicated earlier or passing on whether or not this Toronto lab  
25 meets your requirements and whether or not it has answered



or provided the correct answers to the analyses and provided the correct documentation? Is that essentially you as the senior member of the doping subcommittee?

5 A. Not at all. I am only involved -- alone involved I would say in the pre-accreditation step where they have to send back to my laboratory the review, the results they have obtained. But the accreditation process, the other laboratories are asked to prepare, I believe, eight copies of the documentation to send them to  
10 each member of the IOC subcommission --

Q. I see.

A. -- for review. And then our secretary ask for the opinion of the different members. This may be done in connection with a meeting of the subcommission or  
15 this may be done in writing.

Q. Then if the laboratory applying meets the requirements as seen by you and the other members of subcommission, then I take it that the application is put to the IOC Medical Commission itself under the  
20 chairmanship of Prince de Merode?

A. Yes, sir.

Q. With your recommendation?

A. Yes. I will put forward the recommendation to the chairman and he will write letter.  
25 Naturally, also these questions of accreditation are



discussed at the meetings at the regular meetings of the full Commission. And on the agenda you will find each meeting, one point of agenda, accreditation re-accreditation. There we will discuss the future program of accreditation.

THE COMMISSIONER: Are all the labs now in either Europe or North America?

THE WITNESS: Except two which are in Asia: Seoul and Toyko.

THE COMMISSIONER: Seoul and Toyko.

THE WITNESS: Seoul and Toyko.

THE COMMISSIONER: Right.

THE WITNESS: There is no laboratory in the Latin American countries including in South America.

THE COMMISSIONER: Or amongst the African countries either?

THE WITNESS: Nor in Africa. And this moment not yet I must say in the Oceania, this means Australia and New Zealand. But we expect the laboratory in Sydney where the national government and national Olympic committee has made great efforts, can be accredited next spring.

THE COMMISSIONER: In Sydney?

THE WITNESS: Sydney.

THE COMMISSIONER: All right.





THE WITNESS: The other situation can be explained by the necessary scientific competence we ask for.

5 It is not only the accreditation cannot be achieved not only by buying the necessary recommended instrumentation, you need the staff qualification, the experience. And this also is the reason why many national sport leaders complain why does this procedure take so long. I had a lot of complaints. I said, okay, your  
10 people are not yet qualified. It is not amusing for sport leader to hear this, but in the end, the Medical Commission of IOC is responsible to the international federations.

THE COMMISSIONER: Yes.

15 THE WITNESS: Is it is responsible also to the athletes, that there are no false positive results are accredited but also no negative, false negative results.

And on the other hand, I feel all the members of the Medical Commission of IOC and you take this  
20 for granted are in myself feel responsible.

So, we have set our standards. The standards have been set based on the experiences in the past. They came not from nowhere. We have made our experience. We have learned --

25 THE COMMISSIONER: I read of some



complaints. I know that there are no IOC accredited labs say any in South America or throughout Africa or throughout much of the world.

THE WITNESS: I also complain this, but may  
5 be I can give you an example. I was twice in South America, once at the world championship in swimming in Equador where the people claimed before, okay, we will install a lab. They provided money and they provided also I would say relative competent people out of the field of  
10 forensic toxicology. But after the world championships, all dissipated.

The same with Caracas. I went to Caracas, and the impression I had out of discussions with the responsible people that they will be able not only to  
15 create a laboratory for the times of the Pan-American Games, but will also be able to run it afterwards. But then came elections, the political situation changed, and all what was claimed before could not be realized.



THE COMMISSIONER: I see.

THE WITNESS: So this is not the fault of the Medical Commission of the IOC. We are asking, you know, more and more, that also in these blind areas of the world, accredited laboratories are installed, but it's a long process.

THE COMMISSIONER: I see.

MR. ARMSTRONG:

Q. How many accredited laboratories are there today?

A. 20.

Q. In 1988, I think the figure was 22?

A. 22. Two laboratories.

THE COMMISSIONER: Indianapolis and Calgary. Are those the two that are lost?

THE WITNESS: No, no, Sagrev (phon), Yugoslavia and Mackling (phon), Switzerland. They thought they couldn't fulfill the new GOP (phon) demands and so they retired.

THE COMMISSIONER: And Indianapolis has been suspended?

THE WITNESS: Indianapolis is temporarily suspended.

THE COMMISSIONER: Calgary as well?



THE WITNESS: Calgary is temporarily suspended, and Indianapolis was promoted to Phase II.

THE COMMISSIONER: Oh, yes, Dr. Dugal mentioned that.

5 THE WITNESS: Dr. Dugal explained yesterday what this means. As well, in Phase II are the laboratories in Moscow, Prague and Helsinki.

THE COMMISSIONER: And how many did you say there are today?

10 THE WITNESS: 20, and I have here on my list maybe grants in the future.

THE COMMISSIONER: What have you got there?

THE WITNESS: I have here a list of about 19 laboratories where some correspondence exists.

15 THE COMMISSIONER: For the future, you mean?

THE WITNESS: For the future. And realistic will be that including 1991 --

20 THE COMMISSIONER: If we get into a system of international random testing, which some people are speaking of, you're going to need more facilities, aren't you?

25 THE WITNESS: I'm not quite sure if this is correct. We are asking each laboratory, since '85, officially since '86, to provide a statistic of the year





before. This gives us a good impression how many samples they have analyzed. Based on their report regarding stiff and analytical equipment, we can make a rough estimation. I, personally, it's my estimation now --

5 THE COMMISSIONER: As to what additional services they could provide?

THE WITNESS: Yes. How is the percentage of capacity used in the different laboratories, and my impression, it's not a calculation, but my impression is that at this moment we can provide the necessary capacity even if next year --

THE COMMISSIONER: Well, if South America were included in the overall program, they would have to send all their tests to Los Angeles, let's say?

15 THE WITNESS: Okay, this is a method of discussion, but please accept nowadays, where there is communication by FAX, Telex, whatever, and the air transportation system, it takes sometimes longer to transport samples in our country, the Federal Republic of Germany --

20 THE COMMISSIONER: Than going right across the world?

THE WITNESS: Than to go across the Atlantic. For example, I will not name the company, but by a certain parcel service you will have the samples

25



there within 24 to 36 hours, regarding the intention behind out-of-competition test.

THE COMMISSIONER: But then if you're going to have a true right to have a B sample tested, then  
5 you've got to fly the athlete or some representative to quite far distant places.

THE WITNESS: Okay, this presents a small problem, but I feel we can solve this problem easily, because otherwise, when our ideas regarding out-of-  
10 competition controls will be realized, as we think, you know, a member of the Medical Commission or this new commission will fly to the laboratory.

THE COMMISSIONER: I see. All right.

THE WITNESS: Somebody must fly.

15 MR. ARMSTRONG:

Q. What is the arrangement, just following along that line, for the Commonwealth Games? I don't know whether you know what that is, but the Commonwealth Games  
20 in New Zealand in January, you've indicated there is no IOC accredited lab in --

THE COMMISSIONER: No, they are going to fly their samples to Los Angeles.

THE WITNESS: No, it will be different.  
25 They are making an arrangement, and this is subject to



approval by the subcommission, that they will be granted a temporary accreditation for a laboratory. It will be me and my staff going to Sydney for about five weeks, as far as I remember, to perform that analysis during  
5 Commonwealth Games and to train also the laboratory for the expected accreditation in March or April. This will be the --

THE COMMISSIONER: I understand now, for whatever tests are going on in Australia, I know the tests  
10 are sent to Los Angeles; the samples go to L.A.

THE WITNESS: No, this is not --

THE COMMISSIONER: Not so? This is what I was told last night.

THE WITNESS: I don't know what is the  
15 source of your information. I have my source.

THE COMMISSIONER: Well, we'll try to exchange sources.

MR. ARMSTRONG: I was going to turn to another matter.

20 THE COMMISSIONER: Well, this will be a convenient time to adjourn. Tomorrow morning at 10 o'clock.

--- Hearing adjourned until Thursday morning, August 3, at  
25 10 o'clock.









